



Massachusetts Division of Fisheries and Wildlife Annual Report 1984

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DIRECTOR

The Commonwealth of Massachusetts
Division of Fisheries and Wildlife

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His Excellency, Michael S. Dukakis, Governor of the Commonwealth, the
Executive Council, the General Court, and the Board of the Division of
Fisheries and Wildlife.

Sirs:

I have the honor to submit herewith the One Hundred and Nineteenth Annual
Report of the Division of Fisheries and Wildlife, covering the fiscal year
1 July 1983 to 30 June 1984.

Respectfully submitted,

Richard Cronin

Richard Cronin
Director



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THE BOARD REPORTS

George Darey
Chairman

1984 proved to be a momentous year for the Division of Fisheries and Wildlife. Early in the fiscal year (July 26) the Governor signed the Nongame Wildlife Bill into law establishing a fund which would support expanded nongame activity and which authorized collection into that fund through a refund checkoff on state income tax forms. This posed a most exciting challenge as Division personnel were called upon to become involved in fund raising while the Division examined ways to expand the nongame effort and to incorporate the Natural Heritage Program which had been transferred to the Division from the Department of Environmental Management in the same bill. The Board salutes the Division on the smooth transition and the subsequent effective operation of the program. Fund raising progressed well. Initial projections had set the expected income as "just under \$300,000." In fact, the fund received \$380,000. Shortly after establishment of the Fund, a Nongame Advisory Committee was formally appointed. By May, that committee had completed an initial one year plan for the program and the Division had hired an Assistant Director, Dr. Thomas French, to head up the program replacing Brad Blodget who had chosen to serve as State Ornithologist.

This was just one of the many programs overseen by the Board in the pursuance of its regular duties. As in the past, the Board continued to consider a wide variety of issues, some of which have lead to changes in regulation while others had non-regulatory conclusions. Issues which were examined resulting in changed regulations include examination of the status of migratory birds and subsequent establishment of migratory bird hunting regulations, consideration of economic factors related to pheasant rearing which led the Board to approve the taking of hen pheasants west of a line beginning at Route 3 at the New Hampshire line continuing south to Route 495 and then south along Route 121 to the Rhode Island border. Other items established by regulation were:

- establishment of a controlled deer hunt at the High Ridge Wildlife Management Area
- expansion of turkey hunting to all counties and parts of counties west of the Connecticut River and increase of the number of permits to 3,800
- elimination of the permits required for the taking of frogs

- establishment of a moratorium to run for one year from May 17, 1984 on the taking of Atlantic Salmon from the Merrimack River or any of its tributaries or the Connecticut River or any of its tributaries
- elimination of the requirement that all arrows be labelled with the owner's name and address
- a change in regulations pertaining to the taking of furbearers and specifically moving the dates for taking beaver to November 15 - the last day of February and changing the dates for taking otter to November 1 - December 15 with the requirement that otter carcasses must be given to the Division for analysis
- on the non-regulatory side, the Board approved a strategic plan for the Division and established guidelines for public participation at working Board meetings

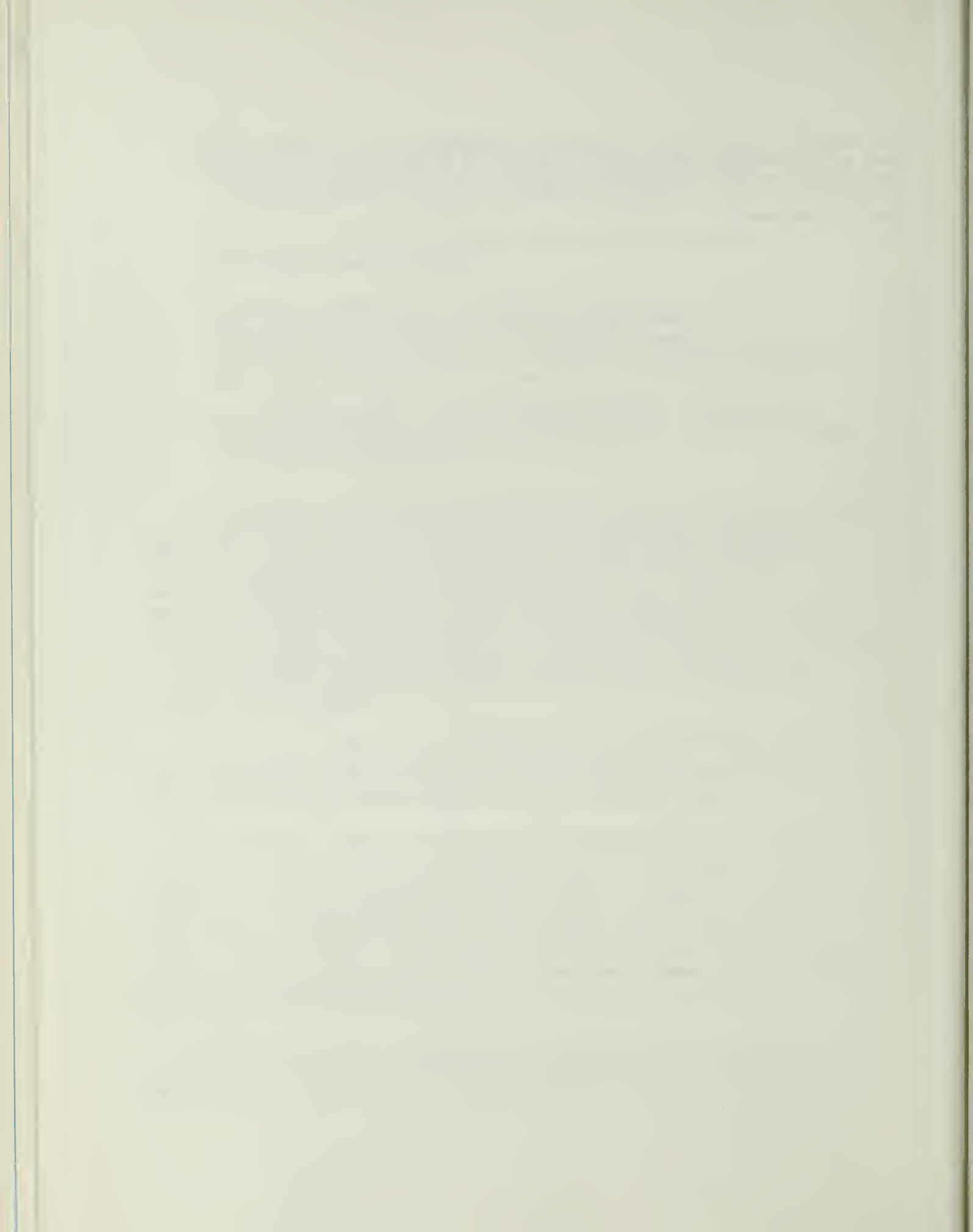
The Board also spent time in consideration of issues not fully resolved during this year. One such was the status of Massachusetts Wildlife given the fact that gradually increasing costs have reduced publication to a single issue per year. This is the culmination of a trend the Board has seen in the past years as publication has gradually been reduced by increasing costs. At this point, it is apparent that in order to resurrect this outstanding publication, that a subscription system will have to be implemented. The Board has instructed the Information and Education Section to review possible subscription systems and has requested the Director to pursue establishment of a designated fund and of initial capital to establish such a system.

The Board also spent a great deal of time in consideration of the goose hunting issue which arose on the Danvers/Salem area. (This issue arose when certain residents complained about noise and shots from hunters legally hunting geese on the Beverly side of the Danvers River.

The financial status of the Division has been fairly secure during this period with a healthy revenue from hunting and fishing licenses and half of the funding for the new nongame program being provided by the general fund. This, combined with a reduction in the amount needed for support of the Division of Law Enforcement, made it unnecessary to seek any increase in license fees despite increasing costs. Land acquisition became a high priority as the Division received allocations of \$5 million for acquisition of land along coldwater rivers and streams; \$5 million for additions to existing Division lands and \$5 million for the purchase of inholdings within Division areas.

This year also saw a strengthening of personnel as, in addition to Dr. French, the Division acquired the services of Wayne MacCallum who became Assistant Director for Wildlife Research in August of 1983.

and Joy Merzer, Information and Education Consultant for the nongame program. Along with this, there was a broad upgrading of secretarial staff in Boston, increasing stability in this area. The Board itself was strengthened by the addition of John F. Creedon, Brockton, as regional representative from the Southeast.



PLANNING

Kristine L. Corey
Junior Planner

The Fish and Wildlife Board gave approval in October, 1983 to release the draft Strategic Plan for formal public review. Notices were published in newspapers statewide, in the Environmental Monitor, a bimonthly publication of the Executive Office of Environmental Affairs, and copies were sent to the central planning agency and each regional planning agency. Copies of the plan were available for review at the Boston Office, Westboro Field Headquarters, and each District office. About two dozen individuals or groups took this opportunity to inspect the document over a 45 day comment period. Only three written comments were received.

The U. S. Fish and Wildlife Service also reviewed the draft Strategic Plan and provided comments based on an evaluation of compliance with federal aid planning standards and noting that on the whole, only minor changes needed to be made. The Wildlife Section, however, did not meet with federal approval primarily due to a deficiency of measurable objectives. Under the belief that the current plans adequately address Division needs, it was requested that the wildlife section be allowed to proceed in their planning effort without major modification of species plans.

The decision was made to continue federal aid funding on a project basis until it becomes feasible to implement program funding through planning. Data processing capabilities which would allow this option are not presently available in-house. Initiatives have been developed as part of an agency ADP plan to justify the need for upgrading the Division's computer capability. A request has been filed to reactivate a vacant junior planner position, preferably to be filled by a planner with skills in data processing.



FISHERIES

Peter H. Oatis
Assistant Director of Fisheries

Quabbin Investigations

Smelt were observed spawning in six of ten monitored streams. Estimates of egg deposition and hatching observed at all six streams indicate that deposition varied with the amount of available spawning habitat while survival ranged from a high of 84% in Gibbs Brook to 57% in Egypt Brook. Laboratory studies to determine the effect of acidity upon smelt egg fertilization proved inconclusive and will be redone in 1985. A new state record lake trout, 21 lb. 13 oz., caught in Wachusett Reservoir, broke the existing 21 lb. 3 oz. Quabbin record. Lake trout anglers creeled 6,565 lakera and released an additional 3,591 fish. Catch rates and total catch of smallmouth bass indicate good survival of the 1980-81 year classes of bass. Creel estimates reveal a total catch of 54,242 bass of which only 7,022 were creeled. These figures reflect the conscious effort on the part of many bass anglers to limit their creel instead of creeling their limit. Rainbow trout continued to demonstrate poorer survival and contribution to the catch than other species. Only 979 rainbows were taken. However, for the second consecutive year, a good class of landlocked salmon (18,150 from Reed Hatchery plus 5,000 from New Hampshire) were released. The creel survey indicates that at least 1,642 sub-legal fish, average 14 to 17 inches, were caught. We expect numerous 18" (legal) salmon to enter the harvest during the summer and fall of 1984.

The heavy rains that occurred in late May caused the release of 33,000 unscheduled brown trout and display pool trout from McLaughlin Hatchery into Quabbin. The catch of a new state record rainbow trout (13 lbs.) eclipsing the existing record (8 lbs. 5 oz.) by 4 lbs. 11 oz. certainly reflects the release of display pool fish.

Experiments were also conducted with caged trout and salmon of selected tributaries to assess the potential impact of low pH and high aluminum content. Differential survival of caged fish documented and defined early spring toxic zones off the mouth of the west arm tributary streams. Further investigations along these lines will be undertaken during the summer of 1984 in an attempt to define the time duration of these acutely toxic areas.

Stream Improvement

The efforts of volunteers and Connecticut Valley District personnel continued to improve stream habitat throughout the catch and release area of the Swift River below Windsor Dam. Dam repairs at the Merrill Pond System were completed.

Three ponds in the Southeast District: Fresh Pond, Big Sandy Pond and College Pond, all in Plymouth, received 80 tons of limestone to combat increasing acidity. It was determined that the Division would have to prepare a generic Environmental Impact Report to continue its pond and lake liming program. Preparation of this statement is underway. Scoping sessions were held in Boston and Orleans during May and the report is expected to be completed by the fall of 1984. The report lays out basic criteria that a water body must meet before it is determined that the addition of limestone will be beneficial to combat increasing acidity.

Smelt eggs were transported from Quinsigamond Lake and Wachusett Reservoir to Fort Pond, Lancaster; Lake Mattawa, Orange; South Pond, Brookfield; and to the state of New Hampshire. Landlocked alewives were transported from Singletary Lake to Webster Lake. These introductions will augment the existing base of forage species. The introductions are predicated upon through fish surveys and analysis of plankton availability.

Anadromous Fish

The dedication of the Bellows Falls Fishway was a high point of the Connecticut River Restoration Program. With the completion of this project by New England Electric Company, salmon have access to a significant portion of their historic spawning range and shad will have access to suitable habitat beyond this historic range.

A total of 87 salmon returned to the Connecticut, 66 were removed from the Holyoke Fishway which also passed 500,000 shad. Improvements in the fishway at Turners Falls resulted in the successful passage of 4,300 shad and two salmon.

Anglers enjoyed a banner year of shad fishing in Holyoke. The successful fishing is attributed to ideal water conditions and large fish attraction to Holyoke prior to the heavy rains of the Memorial Day weekend.

Connecticut River

A total of 410,000 salmon smolts were released into the Connecticut River, of these, 30,000 were produced at Roger Reed Hatchery and were released into the Massachusetts section. 60,000 parr fry were stocked into the Deerfield Watershed.

Merrimack River

Ground was broken for construction of the Lowell Hydro Facility. Although operation is not expected until late 1985 or early 1986, the fishway, over the Pawtucket Dam, should be operational by the spring of 1985.

Although highwater and some mechanical problems continued to impede efficient operation of the Essex Fishway in Lawrence, 5,488 adult shad and 100 salmon were passed. An unusual 77% of the salmon run was comprised of grilse - precocial males with only one winter at sea. This may indicate excellent survival of the 1983 smolt migration or a greater influence. Salmon stocking amounted to 67,000 smolt, 23,300 parr and 525,000 fry.

The creeling of salmon from the Merrimack and Connecticut Rivers was protected by regulatory action of the Fisheries and Wildlife Board on May 17, 1984.

New regulations pertaining to the taking of salmon in the Connecticut River will be promulgated by the Connecticut River Atlantic Salmon Commission in 1985. No legislation action was generated on H. B. 113 which would define inland-marine jurisdictions on the Merrimack River.

An initial creel survey of the shad fishway at Lawrence indicates 4,020 anglers spent 9,934 hours to catch 6,147 shad. Release rates approximated 72%. The state shad record, established as 9 lbs. 10 ozs. from the Connecticut River in 1983 was tied with by a shad from the Merrimack River caught in May in Lawrence. Anglers harvested approximately seven salmon prior to the closure of the fishway.

Sea-Run Brown Trout

Thirteen days of broodstock collection yielded 19 males and 25 females averaging 18 to 20 inches. These fish plus five recycled females produced 65,000 eggs. Once again, infections at all stages of development from brood fish through smolt production, continued to plague this program. Of the 34,000 eggs collected in 1982, only 18% (6,362) survived to the smolt stage by March of 1984. Despite these problems, the program continues to attract the interest of many anglers. It is hoped that reassignment of personnel at the East Sandwich Hatchery will help in resolving the difficulties encountered in rearing these fish.

Fisheries Surveys: Streams and Lakes

Streams

Biologists intensively sampled 73 biological and 67 chemical replicates on 130 streams across the state. These data will aid in establishing estimates of variation for streams sampled between 1979-1982. Parameter studies include fish abundance, species diversity as well as chemical and physical properties of the streams.

The results of the impact of increasing acidification on the Millers River Watershed were presented at numerous conferences in both oral and poster presentations. Part II of the Massachusetts Stream Classification Program - Physical Characteristics (stream length, gradient, watershed area, etc.) was drafted in cooperation with the Massachusetts Department of Water Pollution Control.

Lakes

District and Headquarters personnel completed fisheries assessments surveys at 30 lakes and ponds. These assessments provide the basis for establishing and evaluating lake fisheries regulations, documentary need and niche for prey or predator introductions (e.g. smelt, alewives, pike and tiger muskies) or aquatic weed problems. Since 1979, three hundred lakes have been surveyed. These waters encompass the most heavily fished lakes in the state. Operating on a sound data base, future lake fisheries efforts will be directed towards more intense management addressing unique problems associated with these more popular lakes.

Additional surveys at lesser used lakes will be conducted in conjunction with environmental assessments. These surveys will include evaluating the effects of mitigative programs, evaluation of dredging and drawdown operations or monitoring the effects of acidification.

Intense assessments of tiger muskie and northern pike introductions are to be conducted in 1985. Additionally, the need for special regulations designed to address specific fisheries problems at specific lakes will again be brought to the Fisheries and Wildlife Board for their deliberations.

Acid Rain Monitoring

The Division continued to cooperate and fund the Acid Rain Monitoring Program through the Massachusetts Water Resource Research Center. Collections were completed for approximately 28% of the state's water bodies. Plans were formulated for completing the sampling on all state waters during 1984-1985. Initial findings generated to date indicate that many lakes and streams located in Southeast and Northcentral Massachusetts are already in a critical or acidified state with respect to their ability to buffer additional acid inputs.

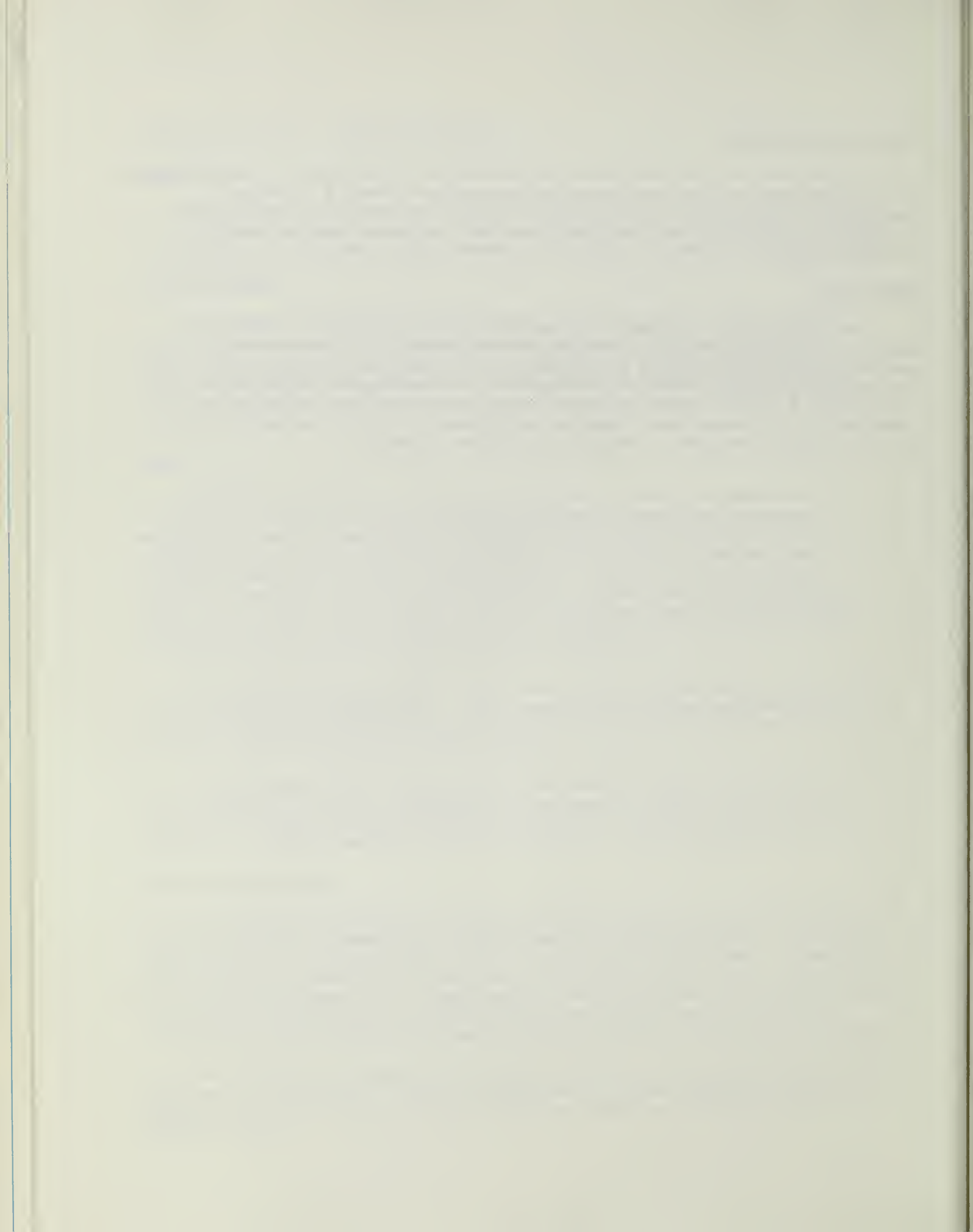
The Division is planning to mitigate the effects of aquatic acidification where and when practical through the addition of ground limestone. Numerous studies and investigations to resolve acid problems are in the initial planning stage.

Technical Assistance

A great deal of time and effort was directed at investigating, commenting and formulating Division positions regarding relocation of Route 2 in Erving. Additional assistance was provided to the Division of Water Pollution Control in sampling fish from rivers and lakes that pose potential heavy metal and Dioxin problems.

Urban Angler

Over 350 students attended learn-to-fish clinics in Brockton, Canton, Randolph, Georgetown, Taunton, Wellesley and Worcester. 33 instructors participated and donated over 1,000 hours of volunteer time. Special events included participation in Boy Scout Jamborees, the Springfield Exposition, the Boxboro Sportsmen's Show and Kivver and Carp Festival in Taunton. The coordinator also worked with fisheries staff members in other states to initiate similar programs in Connecticut and New Hampshire.





David Fredenburgh
Chief Fish Culturist

During the 1984 fiscal year, the hatcheries produced 1,311,978 fish weighing 536,076 pounds. Of that number, 673,975 were nine inches or better. In addition to the production figures, there was 136,500 fingerlings produced at the McLaughlin Hatchery for distribution to the other hatcheries.

Normal maintenance projects were carried on at all of the hatcheries. The East Sandwich Hatchery continued upgrading its facilities including a project which involved renovating an existing building into an office. Also at East Sandwich, pools were re-built and additional netting was installed to lessen bird predation.

Along with normal maintenance and activities, Sunderland Hatchery completed fencing around many pools to reduce predation by Great Blue Herons. The fencing around the ponds greatly reduced this problem. The hatchery has also increased its efficiency by the use of rainbow trout eggs received in early fall. These eggs allow the hatchery to produce catchable yearlings rather than two year fish.

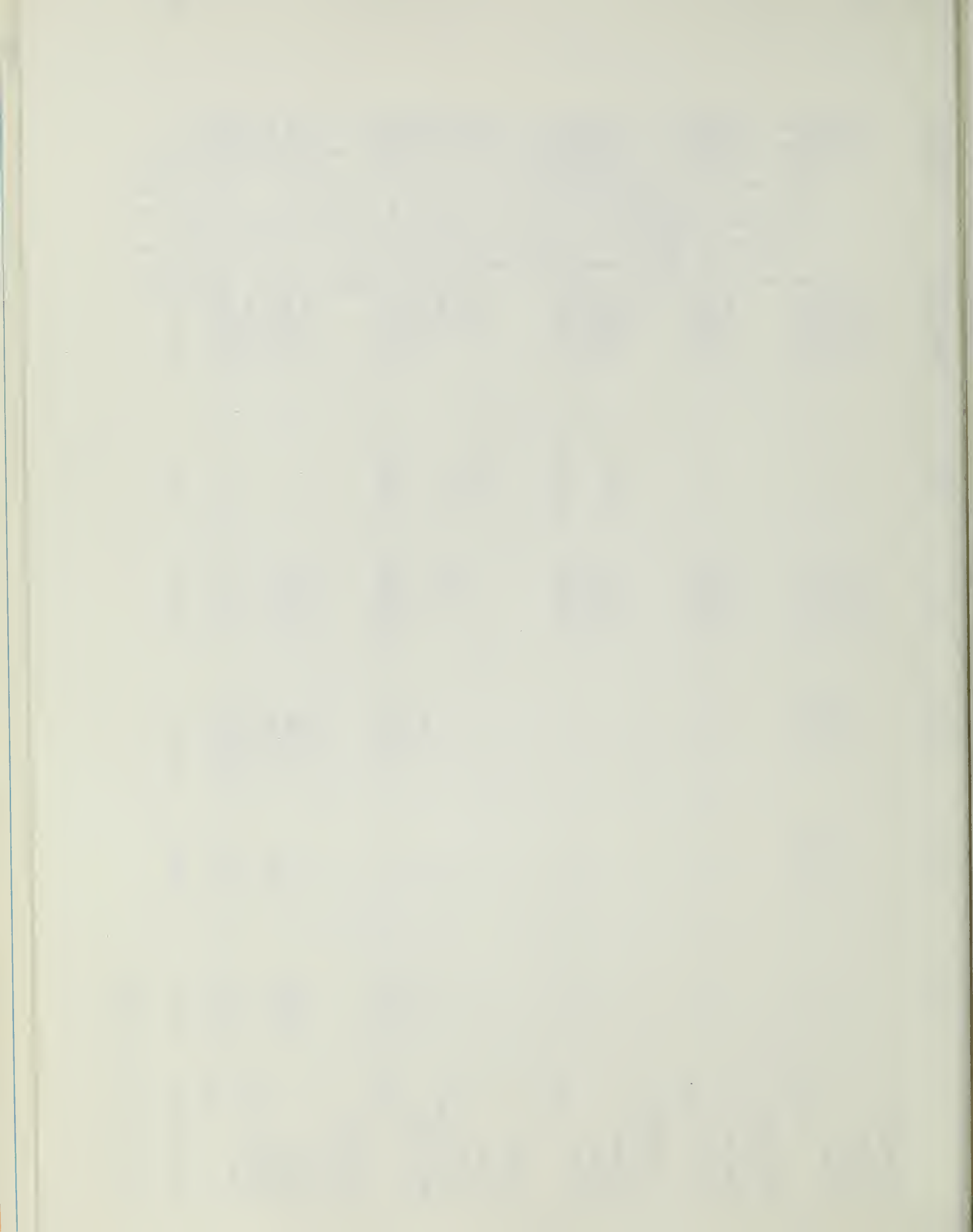
The tiger muskie program at the Roger Reed Hatchery suffered another set back when these fish were poisoned for the second year. Intense investigations were carried out and plans were developed to expand the fencing perimeter, put partitions around the tanks, construct a substantial cover over the tanks and increase lighting. The hatchery personnel have been very successful in producing Atlantic Salmon smolts.

The pollution control project at the McLaughlin Trout Hatchery finally got underway with the selection of the engineering firm, Fay, Spofford and Thorndike, to update existing plans, prepare the bid package and be involved with construction. The Ciocca Construction Corporation of Springfield, Massachusetts was notified on June 5, 1984 that they were the successful contractor with a bid price of \$545,000. Completion date for the project is expected to be in early December.

Because of an extremely heavy rainfall during the end of May, the water reached record spillway levels at the reservoir, and the pumping station at the McLaughlin Hatchery was threatened with high water from the flooding Swift River. A decision was made to evacuate the hatchery of fish and shut the electricity off. A total of 600,000 fish were evacuated to both the Palmer and Sunderland Hatcheries, as well as the Quabbin Reservoir. The river flooded to the level of the pump house floor before receding early in June. All in all it was a successful move to and from the hatcheries. Little damage was done to the hatchery due to the flood waters.

	<u>1-3"</u>	<u>3-6"</u>	<u>6-9"</u>	<u>9+</u>	<u>12+</u>	<u>Total Fish</u>	<u>Weight</u>
<u>McLaughlin</u>							
Rainbow	-	-	-	236,000	-	236,000	196,900
Brook	-	-	10,100	128,575	-	138,675	53,575
Brown	-	154,680	61,500	51,000	-	267,180	69,000
Totals	-	154,680	71,600	415,575	-	641,855	319,475
<u>Montague</u>							
Rainbow	-	-	-	51,350	-	51,350	49,550
Brook	-	-	-	10,000	-	10,000	6,950
Totals	-	-	-	61,350	-	61,350	56,500
<u>Sunderland</u>							
Rainbow	-	-	-	18,250	18,300	36,550	44,250
Brook	-	-	-	17,700	-	17,700	20,375
Brown	-	-	-	25,150	-	25,150	21,750
Totals	-	-	-	61,100	18,300	79,400	86,375
<u>Palmer</u>							
Brown	-	-	-	-	600	600	575
Brook	-	-	-	800	3,250	4,050	5,000
Tiger Muskie	-	-	-	350	-	350	65
Atl. Sal.	38,500	-	49,100	-	-	87,600	4,075
Land. Sal.	-	-	-	18,150	-	18,150	3,300
Totals	38,500	-	49,100	19,300	3,850	110,750	13,015
<u>Sandwich</u>							
Rainbow	-	-	25,850	67,000	-	92,850	35,875
Brook	20,000	-	25,600	10,750	-	56,350	11,450
Brown	30,000	62,000	10,450	16,750	-	119,200	10,750
Sea-Run Brown	-	-	14,750	-	-	14,750	2,785
Coho	-	-	148,000	-	-	148,000	7,150
Totals	50,000	62,000	224,650	94,500	-	431,150	68,010
GRAND TOTALS	88,500	216,680	345,350	651,825	22,150	1,324,505	543,375

(Transfers total 136,500)





Wayne F. MacCallum
Assistant Director of Wildlife

The Wildlife Research Section consists of one chief, three game biologists, two assistant game biologists, one restoration project field agent, and one conservation helper. This staff is responsible for research on and management of approximately 75 species of mammals, birds, reptiles, and amphibians which are traditionally hunted, trapped or otherwise taken for food, animal products, or sport. Additionally, the section is responsible for administering the Division's falconry program, for coordinating development of the Division's wildlife management areas, and for recommending to and advising the senior staff and Fisheries and Wildlife Board on matters of administration, regulation, and policy relative to the Commonwealth's wildlife resources. The section oversees three Federal Aid in Wildlife Restoration Projects (W-9-D, W-35-R, and W-42-R) comprising about 35 research jobs in addition to about four other jobs conducted by the Massachusetts Cooperative Wildlife Research Unit and supervised by the Division. Section biologists also coordinate with the Realty, Planning, Nongame and Information Sections when particular expertise on wildlife matters is needed. Summaries of current studies underway follow.

WATERFOWL

Pre-season Banding

Airboat nightlighting and bait trapping was used to band 477 wood ducks, 230 mallards, 69 black ducks, 15 mallard x black hybrids, 24 blue-winged teal, and 19 green-winged teal.

Statewide Goose Census

In late December, the Division conducted its first statewide goose count, in conjunction with the annual Audubon Christmas Bird Count. Division personnel covered areas of Massachusetts not covered by the Audubon bird counts. A total of 21,704 Canada geese were counted, 8,536 in inland areas and 13,168 along coastal towns.

Mid-Winter Waterfowl Inventory

A total of 286,413 waterfowl were counted during the January 1984 winter inventory, the highest count in more than 20 years due to the presence of 215,890 ducks. Black ducks (20,401) were up 21% over last year but unchanged (-1%) from the 10 year average. All other waterfowl were up well above last year's low count except scaup (-63%) and geese (-5%).

Winter Banding

December and January averaged below normal temperatures but were characterized by alternating cold and warm spells. Only 222 black ducks, 53 mallard x black hybrids, 3 mallards and 1 pintail were banded.

Wood Duck Nest Structure Study

No duck nests were started in plastic buckets on 13 new areas established during the winter of 1981-82, but seven wood ducks and one hooded merganser nested in wooden boxes on the same areas. Usage on 14 established wood duck box areas ran 30% for 46 buckets, 47% for 170 boxes and 25% for 12 metal cylinders. Success rate was 100% for nests in cylinders, 86% in boxes and 57% in buckets.

Biological Tagging of Wood Ducks

A total of 493 blood smears were read from birds sampled between 6 August and 15 October 1983. The blood parasite infection rate for birds from southern New England (primarily Massachusetts) was 89.4% for 1982 vs. 77.9% in 1981 and 79.3% in 1980.

Wood Duck Production Study

One hundred seventy-seven nest starts were recorded in 558 available structures on 50 areas across the state. There were 138 successful wood duck hatches and nine hooded merganser hatches.

Canada Goose Parts Collection Survey

A network of cooperators was established through a series of goose sex and aging workshops held across the state. Measurements were taken on 247 geese either bagged by sportsmen or collected by Parker River National Wildlife Refuge personnel. Data collected were computerized by Connecticut wildlife personnel. The measurements will aid in determining the origin of geese harvested in Massachusetts.

Experimental Waterfowl Season Appraisal

In 1983, Massachusetts modified its zoned waterfowl season by dividing the inland zone into a western and central zone. This was coupled with black duck harvest restrictions. Only one black duck was allowed daily in the western and central zones. We continued with a two black duck bag in the coastal zone but did not allow black duck hunting during 10 days in December, resulting in a 40 instead of 50 day season for black ducks. The central and coastal zone both opened 24 October after the start of the pheasant season. The waterfowl harvest remained generally unchanged but the wood duck harvest declined 62% from prezoning years while the black duck harvest declined 30%.

SMALL GAME

A total of 603 hunters were contacted to attain a sample of 400 small game hunters licensed in 1983. Hunters were surveyed to determine their participation and harvests during the 1983-84 hunting season.

Sampled totals were expanded to provide an index of total hunter participation, total hunter success, and total harvest. Average harvests were calculated as mean take. Pheasant, ruffed grouse, and cottontail were the preferred species ranked by hunter effort and hunter success. Pheasant, cottontail, and gray squirrel predominated in the bag.

The majority of waterfowl hunters (44%) hunted only in the coastal zone. Among all waterfowl hunters, an estimated 8,655 (51.6%) hunt the coastal zone, 6,295 (37.5%) the central zone, and 1,574 (9.4%) the western zone.

Hunters were also queried in this survey regarding deer hunting activity. The estimated number of deer hunters was calculated as 83,144, an increase of 6.2% over 1981-82 estimates. The number of participants engaging in archery and primitive firearms hunting increased by two-thirds over 1981-82; however shotgun hunters increased by only 5%.

BEAVER

The 1983-84 beaver season ran from 23 November to 29 February statewide. During this season, a total of 531 beavers were taken by 72 trappers in 78 towns, for a mean take of 7.4 beaver per successful trapper. This take represented a decrease of 53 beaver (-9.1%) from 1982-83. Decreases were most evident in Essex-Middlesex (-47.3%), Hampden (-41.4%), and Berkshire (-38.5%) counties and in Zones 06 (-96.2%), 04 (-51.8%), and 01 (-46.7%). Increases were evidenced in Hampshire (+161.5%) and Worcester (+28.3%) counties and in Zone 03 (+25.3%). Trapper take decreased in December and increased in February. Pelt prices continue to be low.

Commencing in 1984-85, the beaver season will run from 15 November until the last day of February: with the provision that no Conibear-type traps greater than #110 or equivalent shall be allowed after 15 January.

OTTER AND FISHER

During the 1983-84 otter season, 58 successful trappers took 119 otter in 59 towns in nine counties for an average of 2.0 otter per successful trapper. This compares with a harvest of 106 and an average of 2.3 in 1982-83.

The fisher take decreased from 140 in 1982 to 124 in 1983, with 57 successful trappers taking an average of 2.2 fisher each among 49 towns in seven counties (64 trappers averaging 2.2 in 1982).

Worcester (55), Essex (15), Hampden (13), and Franklin (12) counties and Zones 03 (37) and 02 (25) yielded the most otter and Worcester (63), Essex (23), and Franklin (17) counties the most fisher.

A total of 46 otter and 121 fisher carcasses were collected. The mean age of otter in 1983-84 was 1.97 and of fisher 1.62. This compares with 1.97 for otter and 1.56 for fisher in 1982-83. One-half (1/2, 50%) of the otter aged 2.5 and older and 19 (79%) of the fisher aged 1.5 and above during 1983-84 had been bred. This compares with figures of 100% for otter and 71% for fisher in 1982-83. Average corpora lutea counts were 2.5 for otter and 3.1 for fisher in 1983-84, and 2.4 and 2.9 respectively in 1982-83.

Commencing in 1984-85, the otter season will run from 1 November until 15 December, with mandatory carcass turn-in.

BOBCAT HARVEST EVALUATION

A total of 28 bobcats were taken in 1983-84, including 14 by hunting, 13 by trapping, and one road kill. The mean take per successful hunter (N=13) was 1.1 and per successful trapper (N=11) was 1.2. Bobcats were trapped most frequently in November (92.3%) and shot in January (71.4%). Target selectivity is low for trapping (15.4%) and moderately high (64.4%) for hunting. In 1983-84, bobcats were taken in 19 towns in five counties. Kittens (0.5 age class) comprised 20% of the take. The average pelt price (\$50.92) was the lowest since 1977-78.

COYOTE INVESTIGATIONS AND HARVEST SURVEY

A total of 34 coyotes were taken by 25 sportsmen in 26 towns and six counties during the 1983-84 hunting season. Nearly two-thirds (65%) of the kill was in November, with 11 hunters (32%) targeting specifically for coyote. Immature coyotes comprised 72% of the harvest. Fourteen mortalities from causes other than sport hunting were recorded.

MOURNING DOVE CENSUS

The total number of calling doves on three long-term standardized routes decreased 29% during 1983-84. Counts on all 18 comparable routes increased 14% (175 to 200) from 1983 to 1984.

BOBWHITE QUAIL CENSUS

The 1983 weighted call indices for Bristol County showed no significant change from the 1981 Bristol index or from a five-year (1973-1981) index of consistent routes. The 1983 weighted index for Plymouth County showed no significant change from the 1981 Plymouth index. Indices from all other counties and from the statewide total showed significant or highly significant changes from the 1981 Plymouth index. Indices from all other counties and from the statewide total showed significant or highly significant declines from 1981 indices and from a five-year (1973-1981) mean index, both for all routes and for consistent routes only.

WOODCOCK

The 1983 woodcock season harvest increased 12% over 1982, but was 21% lower than 1981.

The 1984 spring woodcock singing ground census count averaged 1.39 birds per route as compared to 0.67 birds per route in 1983; an increase of 107%. However, because of two disastrous springs (1982,1983) the excellent recovery returned the population to only slightly above the 1982 estimate of 1.27 birds (a record low at that time).

The spring of 1984 was colder than normal and a six-day period of rain in late May produced a rainfall of over nine inches in some sections of Massachusetts.

Because of this rainfall and the cold spring, good woodcock survival was doubtful, and because the singing ground census was still low, the Fisheries and Wildlife Board voted to continue with a two bird daily bag limit which had been in effect since 1982.

WILD TURKEY RANGE AND HARVEST EVALUATION

The fifth Massachusetts spring gobbler hunt was held during a two-week period in May 1984 in all counties and parts of counties west of the Connecticut River. A record number of 3,818 permits were allotted, for which a total of 5,376 applications were received. A record kill of 208 turkeys was attained, with a sportsman participation rate of 3,467 (91.2%) and a hunter success rate of 6.0%. The Berkshire county kill was 143 (69%); Franklin county 32 (15%); Hampden county 21 (10%); and Hampshire county 12 (6%). Adult males totalled 123, or 59% of the total kill.

Winter weather conditions hampered trap-and-transplant. A total of 25 turkeys (11 females, 14 male) were captured and processed. Twenty-one turkeys (11 females, 10 male) were released in Groton, Middlesex county, and an additional four toms were banded and released at two capture sites.

Recommendations for the 1985 season are to:

1. Increase season length to three weeks, beginning the first Monday in May.

2. Divide the three weeks into two periods -- the first week and the second and third weeks combined.
3. Issue permits at the same rate as in 1984, but with equal number of permits (3,800) for each period.
4. A hunter can apply for only one period, but can designate a second choice.

FALCONRY

During 1984, the ranks of the falconers remained stable with 15 apprentice, nine general and six master falconry permits issued. The most frequently flown bird was the red-tailed hawk. Four breeding permits and 23 raptor salvage permits were also issued.

DEER

The 1983 statewide deer harvest for all seasons combined was 4,525 deer which is an increase of 514 over the 1982 harvest of 4,011. Seventy-four percent of the 1984 harvest came from the counties of Berkshire, Franklin, Hampshire, and Hampden. Worcester County contributed 12% (570 deer) of the state deer harvest and Barnstable County contributed 2% (115 deer). The islands of Dukes and Nantucket counties contributed 2% (154 deer) and 3% (137 deer) respectively. The remaining counties of Essex, Middlesex, Norfolk, Bristol, and Plymouth contributed 5% (208) deer to the overall harvest.

A total of 3,801 deer was taken during the December shotgun season; of this total, 2,670 were males and 1,131 were female deer. Archers took 413 deer (282 males, 131 females) and primitive firearm hunters harvested 303 deer (122 males, 181 females). Paraplegic sportsmen took three males and five females during their special hunt.

Successful hunters taking an antlered male during any season were allowed to hunt and take a second deer -- but during the shotgun season a hunter must have been issued an antlerless permit to harvest an antlerless deer.

A total of 44,535 antlerless permit applications were received before the 1983 season. Seven thousand, two hundred sportsmen permits and 464 farmer-landowner permits were issued for mainland Massachusetts. The 1983 harvest of antlerless deer by permit holders was 1,372 deer.

Natural Resource Officers reported 467 non-hunting deer mortalities during the 1983 calendar year. Deer-vehicle collisions accounted for 73% of non-hunting mortality. Illegal kills, dogs, unknown causes, crop damage, and drowning accounted for the remainder of non-hunting mortalities.

BLACK BEAR

A total of 774 bear hunting permits were issued during 1983-84. Ten bears were taken; eight during the first period of the season and two during

the second period. Eight males and two females were taken from Berkshire (5), Franklin (3), Hampden (1), and Hampshire (1) counties. Seven non-hunting mortalities were reported, including two road kills, two found dead, one nuisance kill, one capture mortality, and one euthanized. Seven nuisance complaints, including four beehive depredations, were received.

STUDIES CONDUCTED BY THE MASSACHUSETTS COOPERATIVE WILDLIFE RESEARCH UNIT

1. Wild Turkey Population Dynamics

Five of 16 birds instrumented during winter 1982-83 remained available for study as of 1 December 1983. These birds were monitored through February to obtain data on winter habitat use.

Trapping efforts in February and March provided 23 additional birds (20 females, 3 males) for the study. Monitoring efforts during and following spring dispersal concentrated on hens in order to detect onset of nesting behavior. All hens will be monitored through the breeding season to provide information on productivity. Hens with broods will be monitored through the summer to obtain data on brood habitat use.

Seven birds died during the report period. Three hens were lost to predation; one in the fall and two during the spring dispersal/nesting season. Two males were also lost through predation, and two were shot during the legal hunting season.

2. Ecology and Status of the Bobcat in Western Massachusetts

The second trapping season started in December 1983 and continued through March 1984. Eight adult bobcats (5 males, 3 females) captured 12 times in box traps, were weighed, measured, and collared with radio-transmitters. Movement, activity, and habitat data are presently being obtained. Four radio-collared bobcats died during the past year.

Snow-tracking data were obtained from 12 days of tracking seven collared bobcats (4 males, 3 females). Snow-tracking observations have been made to evaluate habitat use, feeding habits, behavior, and intraspecific interactions.

Twenty-seven bobcat carcasses were obtained for this study from the Massachusetts Division of Fisheries and Wildlife. Sex, age, and female reproductive status were determined from the carcasses, along with weight and length measurements. The digestive tract contents were removed for food habits analysis.

3. Black Bear Home Range, Movements, and Habitat Use in Massachusetts

This job was completed and a thesis prepared and approved. Findings are summarized below. A new job investigating sow-cub interactions, reproductive success, and cub survival will be initiated 1 July 1984.

Between May 1980 and July 1983, 63 different bears were captured and tagged in western Massachusetts. Thirty-five of these bears (13 males, 22 females) were radio collared and 24 (6 males, 18 females) were intensively monitored for over 20 months. Home ranges, 318 square kilometers for adult males, 28 square kilometers for adult females, 34 square kilometers for sub-adults, and 12 square kilometers for yearlings. Home ranges did not represent exclusive territories for either males or females, but were familiar core areas with fluid edges. Considerable overlap in ranges were observed in all sex and age classes. Round-the-clock activity monitoring showed that bears were active at all times of the day, and showed crepuscular tendencies only in summer. Summer activity peaks occurred at dawn and dusk. Spring and fall activity peaked at dusk. Bears exhibited no nocturnal activity in any season except limited early evening activity in the June-July breeding period. Habitat use by all bears coincided with major seasonal food sources. Wetlands were highly preferred in spring and early summer. Skunk cabbage (*Symplocarpus foetidus*) and grasses growing in wooded wetlands, constituted most of bears' early spring diet. Bears used abandoned fields, clearcuts, and other berry-producing areas in late summer. Hardwood stands were important in fall, as acorns and beechnuts were major fall food items. Wetland edges and "corridors" along streams were major travel routes in all seasons. Bears dened usually from mid-November to mid-April. Most dens (62.5%) were in slash piles left by logging operations.

Detailed findings are presented in the thesis, "Home Range, Movements, and Habitat Preferences of Black Bear in Western Massachusetts" by Kenneth D. Elowe.

FURBUYER TALLIES

A total of 27 furbuyers submitted annual reports; of these, nine did not buy any furs from Massachusetts trappers or hunters. The remaining 18 purchased 30,281 muskrat, 516 mink, 68 otter, 11 skunk, 6,585 raccoon, 75 fisher, 489 red fox, 214 gray fox, 313 beaver, 23 bobcat, 18 coyote, 138 opossum, and 4 weasels.

The results of four fur auctions held by the Bay State Trappers Association were tabulated to give a yearly average. The average prices for 1983-84 were muskrat \$4.30, mink \$22.40, otter \$35.31, fisher \$110.11, opossum \$1.57, raccoon \$10.84, red fox \$41.45, gray fox \$36.28, bobcat \$50.92, beaver \$16.26, and coyote \$21.02.

MAST SURVEY

District offices surveyed their oak plots in August to determine acorn production. There were 90 permanent oak plots across the state consisting of 40 white oak plots (368 trees) and 50 red oak plots (482 trees). These plots were all surveyed during August to determine acorn production. In addition, a subjective mast report was distributed to interested volunteers throughout the state, to collect general data on a wide variety of wildlife food crops.

White oak production was a complete failure all across the state. Red oak production was much better although still a poor rating in every district except Northeast which had a failure. Cherry, blackberry, raspberry, blueberry, and crabapple seemed to produce well while production of all others was relatively low.

WILDLIFE DEVELOPMENT

The Development Project is responsible for operations on 52 Wildlife Management Areas, totaling 61,000 acres. The project also has responsibility for the construction, erection, and maintenance of nesting structures statewide.

The work done on wildlife management areas provides for public useage and safety and improves existing habitat for wildlife.

Below is a summary of work done between 1 July 1983 and 30 June 1984:

JOBS PROVIDING FOR PUBLIC USE

1. Buildings: Maintained 14 buildings on 7 areas.
2. Bridges: Maintained 2 bridges on 2 areas.
3. Roads and Trails: Constructed .7 miles of trail on 1 area and maintained 48 miles of roads and 17 miles of trails on 11 areas.
4. Parking Lots: Four lots were constructed on 1 area and 61 lots were maintained on 13 areas.
5. Blinds: Fifteen waterfowl blinds were maintained on 2 areas.
6. Signs and Boundary Markers: A total of 354 signs were erected on 9 areas and 11 miles of boundaries were marked on 4 areas. An additional 1,057 signs were repaired and maintained on 25 areas and 94 miles of boundaries were checked and reposted where needed on 25 areas.
7. Managed Public Hunts: Controlled hunts were held on 4 areas; two for waterfowl, one for upland game, and one for deer.
8. Gates: Thirteen gates were erected on 4 areas and 39 gates were maintained on 9 areas.
9. Building Removal: Seven abandoned buildings were removed from 1 area.

JOBS FOR IMPROVING WILDLIFE HABITAT

1. Dams: One dam was maintained.
2. Fences: Four miles of fences were maintained on 1 area.
3. Tree and Shrub Planting: Five areas had 600 shrubs and 1,025 trees planted for hedgerows and field border improvement.
4. Herbaceous Seedlings: Personnel planted and/or maintained fields by mowing or spreading lime and fertilizer. A total of 242 acres of fields were managed on 7 areas. In addition, 1,671 acres of fields on 19 areas were managed by cooperative agreements with local farmers.
5. Clearing: Nine acres were cleared on 1 area to create herbaceous habitat for bob-white quail.
6. Vegetation Control: Brush was controlled on 14 areas with a total of 222 acres being affected.

7. Timber Management: Two acres were cut selectively on 1 area.
8. Water Level Management: Water levels were manipulated on 1 area of 160 acres to encourage emergent vegetation.
9. Nesting Structures: A total of 166 wood duck nesting boxes were constructed for statewide distribution and 936 boxes were checked and repaired. Four osprey nesting platforms were constructed in southeastern Massachusetts, bringing the total number constructed under this program up to 15 platforms. Six loon nesting rafts were placed on Quabbin Reservoir. One-hundred bluebird nest boxes were constructed and distributed to the five wildlife districts for installation.

Additional time was spent by personnel in planning work, submitting reports, ordering supplies, maintaining equipment used on the project, inspecting ongoing work and checking each area.



GAME FARMS

E. Michael Pollack
Chief Game Biologist

During the 1982 and 1983 pheasant rearing season, all the game farms experienced a highly contagious viral disease causing a 50% or higher chick mortality.

The disease was finally identified by the University of Connecticut Wildlife Disease Department as "rotavirus." Mortality of the chicks occurred between 3-15 days and could not be controlled by any treatment.

Starting in the fall of 1983, all farms conducted a vigorous sanitary program; fumigated all equipment and buildings and closed farms to non-essential traffic, i.e., visitors. In addition, all broodstock was released and new broodstock acquired from New York State.

The results of a such a stringent program paid off as 1984 resulted in no evidence of rotavirus. Mortality to date has been normal.

Game Farm Production

1983

Pheasants

Game Farm	SR	B	C	PG	Totals
Ayer	1,795	1,436	3,892	10,408	17,531
Wilbraham	1,985	2,960	6,716	6,132	17,793
Sandwich	<u>125</u>	<u>1,192</u>	<u>2,832</u>	<u>6,076</u>	<u>10,225</u>
Totals	3,905	5,588	13,440	22,616	45,549
Quail					4,170

No white hare purchased due to poor trapping conditions in New Brunswick during winter of January-February 1984.



NON-GAME AND ENDANGERED SPECIES

Bradford G. Blodget
State Ornithologist

The Massachusetts Nongame and Endangered Species Program was first established by the Division of Fisheries and Wildlife in 1977. As a result of the passage of Chapter 330 of the Acts of 1983; often referred to as the Nongame Checkoff Bill (see legislative section), the Nongame and Endangered Species Program was able to expand its programs in Fiscal 1985. The program's full time staff now includes the Assistant Director for Nongame and Endangered Species, the State Ornithologist and Information Specialist. Checkoff funds first became available in the 1985 Fiscal Year so the program is expected to develop even further over the next year.

Another new development was the transfer of the Massachusetts Natural Heritage Program from the Department of Environmental Management to the Division of Fisheries and Wildlife. The Massachusetts Natural Heritage Program has been operated since 1978 cooperatively between the Commonwealth and The Nature Conservancy and, during this period, has primarily been funded from the General Fund through periodically renewed contracts. The Nongame and Endangered Species Program work closely together to identify and protect populations of rare plant and animal species and unique natural communities.

Passage of the Nongame Checkoff Bill was a Legislative landmark for the Nongame and Endangered Species Program. Versions of this bill had been debated by the state legislature since 1978. This law now provides a funding source for the Nongame and Endangered Species Program through a state income tax checkoff as well as through direct donations to the Nongame Wildlife Fund. All contributions are voluntary and will be federally tax deductible. These funds will be used for operation of the Nongame and Endangered Species Program, including nongame inventory, research, management, education, administration and land acquisition. The law also officially established a seven member Nongame Advisory Committee which replaced a similar Ad-Hoc Committee appointed by the Director in 1981.

As previously mentioned, the Massachusetts Natural Heritage Program was also transferred to the Division of Fisheries and Wildlife in Fiscal 1984 through the transfer of its line item in the state's budget. A total of 640 new records of rare plant and animal species and significant natural communities were added to the Massachusetts Natural Heritage Program's computerized data base during the year, bringing the total to 2,210 records by the end of June 1984. Although the Greenway Planning Program is budgeted in the same line item, this program will continue to be administered primarily by the Department of Environmental Management.

Restoration Projects

Bald Eagle

Four young eagle chicks which arrived from Manitoba, Canada in Fiscal 1983 successfully fledged from the hack tower at Quabbin Reservoir in Fiscal 1984. A film, "Home Free," based on the Division's efforts to raise and release these young eagles in 1983 was completed and will be released shortly.

During Fiscal 1984, six additional bald eagle chicks were brought to the Quabbin area from Cape Breton, Nova Scotia. Five of these birds fledged successfully in Fiscal 1985. The sixth chick died of an intestinal bacterial infection while being raised at the tower.

The annual Winter Bald Eagle Survey was held this year on January 7. As in the past, the greatest number of eagles, 17 bald and one golden, were seen at Quabbin Reservoir. Bald eagles were also reported from the lower Merrimack River (2), Nantucket (1), Assawompsett Pond (2), and the Connecticut River (3). The statewide totals were 25 bald eagles and one golden eagle.

Common Loon

During calendar 1983, restoration efforts continued in cooperation with the Metropolitan District Commission. Although six loon nesting rafts were put out at Quabbin, none were used by nesting loons. Five pairs of loons were known to have attempted nesting during the summer of 1983, but no chicks fledged.

During calendar 1984, a cooperative proposal with the Metropolitan District Commission and the Massachusetts Audubon Society was submitted to the North American Loon Fund. A \$2,000.00 grant was awarded which provided stipends for two loon wardens. Nesting rafts were again put out in spring 1984, but none was used. Four pairs of terriotiral loons began nesting before the end of June.

Peregrine Falcons

Before the end of Fiscal 1984, preparations were made for the arrival of six young peregrine falcons from the Peregrine Fund's captive breeding facility at Cornell University in Ithaca, New York. A hacking site was selected on the roof of the federal J. W. McCormack Post Office and Court House Building in downtown Boston.

Two hack site attendants were hired prior to the arrival of the six chicks on July 17 (in Fiscal Year 1985).

Research Projects

Plymouth Red-bellied Turtle

Dr. Terry Graham of Worcester State College was awarded his third contract from the Division of Fisheries and Wildlife to conduct research on the distribution, population density and structure, and natural history of the Plymouth Red-bellied Turtle. His research was also designed to evaluate the chemical and biological parameters of ponds where the turtles are known to occur. Between July 1, 1983 and the end of September, 39 different individual red-bellied turtles were captured at Federal Pond, two at Crooked Pond and one at Dunham Pond. Foods of nine individuals at Federal Pond were analyzed.

A study of factors threatening recruitment into the existing population, including predation of eggs and young, environmental stress, and low egg production, resulted in several management recommendations. Data for turtle captures in spring 1984, and for the water quality parameters of the ponds for the entire fiscal year are still in preparation by Dr. Graham.

Inventory

Coastal Colonial Waterbird Survey

In spring 1984, the Nongame and Endangered Species Program initiated and coordinated a coastal colonial waterbird survey for the state. This survey was conducted in cooperation with the U. S. Fish and Wildlife Service, National Park Service, Trustees of Reservations, Massachusetts Audubon Society, and many private individuals. This survey is part of a complete east coast effort by the U. S. Fish and Wildlife Service to document the status of colonial waterbirds. The survey results will be completed in Fiscal 1985.

Terns

The 1984 annual tern census and inventory began in June. This will be the Eight Annual Tern Survey coordinated by the Division of Fisheries and Wildlife. Data will be available following the September meeting in Wellfleet. The 1983 report was issued in fall of 1983. Fifty colonies with a total of 7,909 pairs of Common Tern were recorded as were 18 pairs of Arctic Tern, 1,502 pairs of Roseate Tern, and 2,112+ pairs of Least Tern. Seventy-plus pairs of Piping Plover were also recorded in association with 30 tern colonies. In 1984, Piping Plover were separately inventoried by the Massachusetts Natural Heritage Program.

Inland Great Blue Herons

With assistance from four cooperators, the Nongame and Endangered Species Program staff completed the 1983 survey of Great Blue Heron colonies. In 1983, 13 colonies were found to contain a total of 191 active nest platforms and produced approximately 500 young. By contrast, in 1979, six known colonies contained 28 active nests. The number of nesting Great Blue Herons known in Massachusetts continues to increase annually.

The 1984 survey was begun and results will be available later this fall.

Bats

Coordinated by Jim Cardoza of the Division Wildlife Research Section, the annual mid-winter bat survey was completed and the results were tabulated for the Chester emery mines. A total of 872 bats were reported in the Old Mine, including 153 little brown bats, 113 keen's bats, 15 eastern pipistvells, and 591 unidentified myotis. The Macia mine contained 57 little brown bats, 90 keen's, 19 pipistvells, and six myotis. Checks at other locations included the Tantiusques Mine in Sturbridge (3 little brown, 2 keen's) and Bat's Den Cove in Egremont (2 little brown, 11 pipistvells).

Bog Turtle

Three gravid females were discovered in a unique calcareous fen in western Massachusetts in June 1984. This represents the first population of this rare reptile ever documented in Massachusetts. Only one previously documented specimen had been reported from the state. Continued inventory, research, and management is planned to insure the security of this newly discovered population.

Land Acquisition

During Fiscal 1984, nine properties in the state were identified for possible acquisition. In conjunction with the Massachusetts Natural Heritage Program, land acquisition priorities were designed to consider the global and

and state significance of the species and natural communities that are present and can be protected on a site. Negotiations are underway for two properties but no agreements have been reached as yet.

Staff and Budget

Staff Changes

In March 1984, Dr. Thomas French took over as Assistant Director for Nongame and Endangered Species and Brad Blodget assumed his former position as State Ornithologist. Joy Merzer began in January 1984 as a contracted Information Specialist for the program. Joy worked with Ellie Horwitz during Fiscal 1984 primarily on promotion for the Nongame Wildlife Fund.

These promotional efforts included preparation of public service announcements for television and radio, production of an award-winning brochure and a poster by Boston University's Ad Lab, numerous radio and television interviews by the Nongame and Endangered Species Program staff and Advisory Committee Members, and many other presentations around the state.

Other Affiliated Staff

The Nongame and Endangered Species Program continues to benefit from inventory and management efforts of staff in the Division's game section. Some of the primary contributions in Fiscal 1984 were from Bill Davis (osprey pole program, purple martin house program, bald eagle project, and others), Jim Cardoza (bat surveys), Jack Swedberg (bald eagle project), Bill Byrne (bald eagle project), Peter Mirick (reptile and amphibian issues). Dave Halliwell (nongame fish issues), Ellie Horwitz (program promotion and bat survey). Without the efforts of these staff members, many of the nongame projects of Fiscal 1984 could not have been accomplished.

Massachusetts Natural Heritage Program

Major research and inventory projects for rare animal species included grassland bird surveys; a coastal inventory of Piping Plover, American Oystercatcher, and Willet; contracts to outside researchers for the study of rare lepidoptera, rattlesnakes, and small mammals; and the organization of the third annual statewide salamander survey.

Highlights of botanical field work in Fiscal 1984 included the discovery of three rare native plant species never before seen in Massachusetts, and the rediscovery of a dozen rare species not seen in the state for the past 50 to 100 years.

A total of 851 projects from a variety of sources, including federal and state environmental regulatory processes, municipal governments, private conservation groups, and private consultants were reviewed by the staff during Fiscal 1984. Of these, 130 (15.4%) had rare species within

their study areas, and comments were prepared for the appropriate agency to address potential mitigation or protection measures.

DISTRICT REPORTS

Northeast District, Walter L. Hoyt, District Wildlife Manager
Southeast District, Louis Hambly, District Wildlife Manager
Central District, G. Christopher Thurlow, District Wildlife Manager
Connecticut Valley District, Herman Covey, District Wildlife Manager
Western District, Tom Keefe, District Wildlife Manager

The wildlife districts are the operating field units of the Division of Fisheries and Wildlife working directly on Division properties, conducting field research under the supervision of project biologists and serving as liaison with sportsmen, conservation groups and the general public. During the 1984 fiscal year, personnel from all districts stocked trout, pheasants, and operated checking stations at which hunters checked in deer, turkeys and where trappers checked pelts. They assisted the Division of Law Enforcement in enforcing wildlife regulations and monitored controlled hunts at the Delaney Wildlife Management Area and Martin Burns Wildlife Management Area (Northeast), Otis Air Force Base (Southeast) and Ludlow Wildlife Management Area (Connecticut Valley).

A major focus of District activities was on habitat management on a variety of areas owned or managed by the Division. Activities in this area were concentrated on planting shrubs and grasses, liming acidic soils, fertilizing and cutting of brush and, where appropriate, timber. Farmer/cooperator agreements were redrawn as needed confirming private management activities which benefit wildlife primarily, but not exclusively, by cultivating and leaving food crops for wildlife. Special efforts in the

Central District involved preparation of wildlife lands in the recently acquired High Ridge Wildlife Management Area - where 12 old buildings were removed with the help of demolition specialists from the U. S. Army and a special planting program was undertaken under the Liberty Tree Program through which 2,000 trees and shrubs were planted, roads were brushed out and stream improvements were installed over a two month period. In the Southeast, habitat management efforts focussed primarily on established properties at the Crane Wildlife Management Area and on the Myles Standish State Forest.

While the primary thrust of activities on the management areas was for the improvement of wildlife habitat, other activities were carried out to benefit human users of the properties. In this regard, district crews improved roadways and parking areas and posted signs as needed.

District staff members also took part in such continuing research projects as waterfowl inventory and the mid-winter eagle survey. They conducted censuses of mourning dove (4 districts), woodcock (4 districts), took part in a statewide mast crop survey (3 districts) and counted quail (southeast district only). Staff members of the Connecticut Valley District were especially involved in work on the black bear research project being conducted through the University of Massachusetts, while members of the Western District staff worked closely with research personnel from Westboro and from the University on the wild turkey program. In this context, they scouted birds, made and maintained contact with landowners and assisted in trapping birds to be moved to other portions of the Commonwealth. Field crews assisted with the wood duck research program by putting up, cleaning and maintaining wood duck nesting boxes as needed; Northeast District personnel assisted in the inventory of great blue heron rookeries and the Southeast District staff did the same with houses for purple martins. Four martin houses were erected; forty were checked and serviced.

Staff from the Northeast District was involved in the continuing controversy over deer management on the Crane Reservation, Ipswich, a property of the Trustees of Reservations and the issue of waterfowl feeding vs. hunting along the Danvers River.

As in the past, District personnel responded to public inquiries, picked up injured animals and fielded complaints about nuisance animals by providing advice, loaning traps and where necessary, by moving beaver. During this year, the District staff members also took on additional activities as the Nongame and Endangered Species Program gathered momentum. Staff members from the Central District and the Connecticut Valley District continued to assist in the eagle restoration project at Quabbin.

Fisheries staff members of all districts were heavily involved in monitoring water chemistries of selected ponds and streams to determine species composition of fish populations, growth rates and productivity of the waters. Special emphasis was placed on examining the pH of these waters in the Commonwealth. Mitigation measures (liming) were undertaken

on Sandy Pond, Fresh Pond and College Pond, Plymouth; surveys were conducted at Waldo Pond, Brockton; Assawompsett Pond, Lakeville; and 10 streams. Permission to undertake liming operations was denied by local Conservation Commissions for Schoolhouse Pond, Chatham; Bakers Pond, Orleans; and Great Pond, Truro.

The fisheries staff participated in fisheries and acid rain surveys as needed and in projects specialized to their area. This brought staff from the Northeast District to the Essex Dam where they assisted in monitoring and operating the fishlift. The Northeast District finally closed the former Harold Parker State Forest bass rearing facility -- inoperative for many years -- and the ponds, formerly closed, were reopened to public fishing as were the ponds of the Southeast's Rochester Rearing System. Staff of the Connecticut Valley District and Central District gathered fish for the young eagles being raised at Quabbin. Southeast District assisted in efforts to improve the Mattapoissett River for the sea-run brown trout fishery.

In the Connecticut Valley, district personnel were involved with the beginnings of a program to improve fish habitat on the upper portion of the Swift River. Two local sportsmen's clubs had raised \$1000.00 each. This, with matching funds from T.U.'s Mellon Foundation, provided \$6000.00 for the program. Division crews joined volunteers in developing a trail and constructing wing deflectors, a foot bridge and half-log covers which were placed in two-three feet of water as escape cover topsoil and were seeded. This program is expected to vastly improve fishing on the Swift River below the Winsor Dam in Belchertown.

Time not spent in the above-mentioned activities was spent in technical review of a wide assortment of projects derived to have a possible impact on fisheries or wildlife, in technical assistance and in maintenance of vehicles, facilities and wildlife management areas.

District staff members distributed hunting/fishing licenses and related stamps, regulations and informational material to over 450 license sales outlets, and picked up sales returns from the same. Personnel from most districts participated in one or major exhibits helping to make the Division and its activities more visible to the general public and respond to inquiries from the sporting public. In addition to doing this at exhibits, such as the Eastern States Exposition, the Eastern Fishing Exposition, the Boston Camping and Outdoor Show and the Topsfield Fair, staff members presented programs for clubs, civic organizations, sportsmen's groups, and school groups as possible.

SPECIAL NOTE OF APPRECIATION

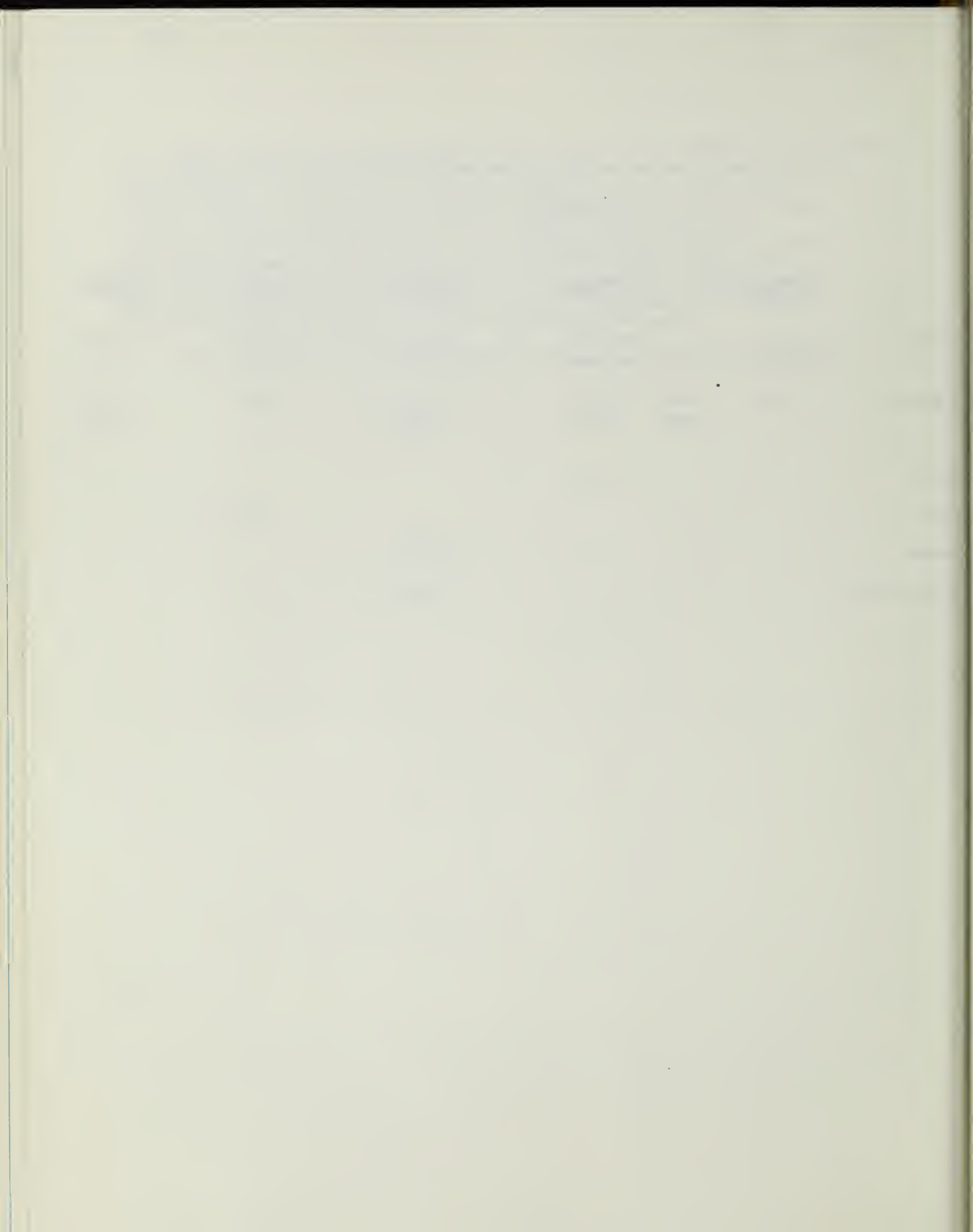
While District crews met and dealt with a wide variety of events and conditions, one deserves a special note as staff action averted a crisis at the Division's largest hatchery.

After a long wet period and an extended rain on the evening of May 30-31nd with rising waters of the Swift River about to drown the main pump house at the McLaughlin Hatchery, the decision was made to evacuate the entire station. Water was rising at 1.5 inches per hour and it became necessary to pull the main switch and shut off all power. All staff of the Connecticut Valley District were called to meet the emergency and to assist hatchery personnel in the transfer of over 500,000 trout. Adult trout went to Sunderland while fingerlings went to the Palmer Station. Show pool fish were released into Quabbin. The call back started at 8:00pm and the men remained on the job until noon the following day.

The dedication shown by all involved warrants a special vote of thanks.

STOCKING

	<u>NORTHEAST</u>		<u>SOUTHEAST</u>	<u>CENTRAL</u>	<u>CONN. VALLEY</u>	<u>WESTERN</u>
Trout	189,355		141,590 15,000	144,500 7,500	155,387	207,208
Pheasant	4,800	cocks	8,476	12,400	10,396	4,476
		hens	1,910	2,250 1,395		1,620
Quail			4,170			
Hare					147	
Salmon				10,000		
Tiger Muskie				10,000		





INFORMATION & EDUCATION

Ellie Horwitz
Chief
Information and Education

Press Contacts

The growth in press coverage noted in Fiscal Year 1983 continued through Fiscal Year 1984 with the section issuing 22 press release packets comprising 130 actual release items. These releases were mailed to an average of 1,700 outlets including newspapers, radio/TV stations, sportsmen's clubs, conservation organizations, town clerks and sporting goods stores. Press response to the releases continued to increase and an analysis of clippings for the calendar year 1983 showed that . Massachusetts Division of Fisheries and Wildlife material was being used on an average of 240 times per month with nine months showing a rate of clipping returns considered "prime" (200+).

In addition to issuing releases, the section hosted ten special events including a press tour of the eagle hacking site at Quabbin which drew 54 writers and television representatives; dedication of the Roger Reed Hatchery, Palmer; signing of a proclamation establishing National Hunting and Fishing Day in Massachusetts; dedication of the trout hatchery at Podick Springs; release of wild turkeys in Groton (2); a press day in the field with the bear research team; a press event focussing on transport of a bald eagle which had been found shot, from a South Shore veterinary facility to NRO Thomas Ricardi; a general information day for outdoor writers and a press conference for the Nongame Fund. A special series of articles, one per month, on Division activities was prepared for the Outdoor Message at their request by Peter Mirick for a period of three months.

Special attention was focussed on working with staff of the Trustees of Reservations to develop public and press advisory materials and procedures to be used in a program to reduce the deer population on the Trustees' Crane property through a controlled hunt. The proposed hunt was cancelled by the Trustees less than 24 hours before the hunt was to begin, plunging information staff into a program of calling prospective hunters, alerting all press outlets and providing information to a much surprised press corps.

The radio show, pioneered with WDLW, continued with a fall radio series of 13 weeks of three one minute shows aired six times a week and broadcast from September through January. As a commercial sponsor purchased broadcasting time, these spots were aired during morning and evening drive times.

In addition to these programs, the Division responded to direct inquiries for information and materials from print and electronic journalists.

Private citizens also sought out the Division for answers to questions regarding natural history, wildlife research programs, Division policies, public lands, vacation planning, etc. To meet those needs, the Information and Education Section mailed out more than 10,000 items (maps, permit applications, regulations, publications) and provided personal written responses as needed.

Publications

Many inquiries were answered with Division publications. As always, all annual publications (regulations, stocking lists, fishing access information, lists of towns having special hunting regulations, and other routine publications) were updated. The Boston Herald agreed to publish a sportsmen's calendar using information supplied by the Division, and the Boston Globe continued to print the joint Globe/Division fishing guide.

In addition, the section joined forces with the University of Massachusetts in planning and preparing two series of flyers, one on Natural History and one on Animal Damage Control which was subsequently printed by the Cooperative Extension Service. In all, 11 leaflets were issued.

Massachusetts Wildlife continued to operate at a reduced level. In view of the launching of the Nongame Wildlife Fund, section staff determined to devote the year's one issue to a celebration of the Nongame Program -- an issue which was very well received. At the same time, Editors Mirick and Horwitz continued to explore options to make the magazine self-supporting. An outline of projected production and promotional costs was developed to assist Director Cronin in his negotiations to establish a separate fund for the magazine. This was considered necessary to enable the magazine to meet its expanding obligations once it moves to a subscription basis.

Exhibits

As in other years, the Information and Education and District staff participated in a series of shows and fairs to increase Division visibility and to facilitate communication with members of the general public. During 1983-1984, the exhibit subject combined warmwater fish and fishing, with wildlife research, represented in the exhibit by a bobcat. Information and Education staff worked closely with District personnel to prepare live-animal exhibits and related materials for the Eastern States Exposition, Springfield; the Eastern Fishing Exposition, Boxborough and the newly established Springfield Sportsman's Show. In addition to these major shows, smaller exhibits were established and staffed at the Greenfield and Topsfield Fairs. Table-top display units were purchased to assist in meeting needs for display material for one and two day shows throughout the Commonwealth.

Programs

All members of the section participated in presenting slide and film shows to both technical groups and general audiences. While this year saw a heavy emphasis on shows explaining the nongame program, other popular programs involved wildlife in Massachusetts' turkey restoration, Division activities and programs designed specifically for the particular audience. These groups included school groups, garden, sportsmen and civic clubs, senior citizens, church groups, etc. In addition to presenting such programs as possible, the section's photography staff created slides to enhance programs given by biologists and District personnel.

Photography

Division photographers continued to document Division-related wildlife activities on film to increase the Division's library of still photos and film footage. Photographers Swedberg and Byrne worked closely with members of the Nongame staff to produce a slide show on the Nongame Program. This program, prepared as a coordinated slide tape production in both 25 minute and 10 minute versions has been extremely popular with groups seeking information and entertainment. As additional photographs were generated, a problem arose in developing a system, long neglected, whereby photographs could be organized in an efficient manner to make them accessible to Division staff. Volunteer Anne Youngstrom worked with the photographers to revitalize the system currently in use and to update photography files.

Education

In addition to general school programs mentioned under "Programs" and the instruction provided at the Massachusetts Junior Conservation Camp, special programs were offered to Ducks Unlimited's Greenwings, and to two sessions of Project Adventure, an enrichment program of the Westboro schools. A workshop for teachers on teaching about wildlife was held at

the request of the Concord Public School System and conversations with the Audubon Society continued on the subject of Massachusetts' involvement in Project WILD.

Special Programs

Nongame Promotion

Unquestionably, the single most important "special project" addressed by the Information and Education Section during the period was the preparation of material for and launching the first campaign to obtain contributions to the newly established Nongame Wildlife Fund. The Fund, and a checkoff provision on the Massachusetts Income Tax to generate donations was established by the Massachusetts Legislature and signed into law by Governor Michael S. Dukakis on July 26, 1983. Shortly thereafter, plans were initiated to develop promotional materials. Some 35 groups with wildlife related programs were solicited to co-sponsor the new program and to assist with distribution of promotional material. Donations were solicited to allow the printing of these promotional materials and funds were received from the Massachusetts Audubon Society, the Sierra Club and the Middlesex County League of Sportsmen's Clubs. A crash course in basic advertising was provided to section Chief Ellie Horwitz by faculty members of Emerson College and Boston University. This latter institution also offered the services of a group of young advertising pre-professionals through AdLab, a senior and graduate seminar in advertising. The AdLab team worked with Division staff to prepare basic promotional material including a poster, a program brochure, small cards for general distribution and a print ad using the slogan "Line 36B is for the birds. . ." Press releases were issued to introduce the program, special releases were generated to assist legislators in promoting the program among their constituents and special press packages were created to meet press demand for information about the new program and about specific individual projects. Fifteen, 30 and 60 second radio spot announcements were developed and Ellie Horwitz worked with Channel 5 in the production of a 30 second television spot. Efforts were made to solicit the services of a special spokesman - contacts were made with Bill Cosby, Larry Bird and Big Bird (Carroll Henderson). In all cases, arrangements proved impossible in view of the limited time frame.

Once initial plans had been established and print materials were in preparation, effort was turned to distribution of posters and brochures. Posters were placed in town clerks' offices, tax preparer's offices, in libraries and in veterinary offices. Brochures were available at all of these outlets as well as at offices of affiliated groups and at meetings of clubs and organizations. Appearances for program director Dr. Thomas French and for Commissioner Walter Bickford were booked on all major television stations and many radio stations. Additional radio appearances were made by other members of the Nongame staff and by members of the Nongame Advisory Committee. The task of generating these bookings and monitoring the use of radio/TV materials was taken on in January by Joy Merzer who joined the staff as Information Consultant for the Nongame Program. By

the end of June, this program had netted \$388,070.00.

Freshwater Fishing Awards

Four hundred and seventy-five applications were received for recognition under this program. Annual winners were recognized in a special awards ceremony held at the Eastern Fishing Exposition. New state records were set for American shad and carp. The Tags 'n' Trout program, sponsored cooperatively by the Division and numerous civic groups, clubs and sporting businesses placed 375 fish in 15 bodies of water. Tag return rates were 60% and, at the conclusion of the program in September, 100% of the participating groups sent in the requested reporting materials.

Conservation Camp

The section continued in its traditional role which involves pre-camp administration, publicity and general record keeping. To facilitate this and for the convenience of the camp nurse, a new health record form was prepared. Publicity for the camp was woven into numerous Division shows and press releases. Special publicity for the camp was offered through a special display at the Framingham Sportsmen's Show and through the development of a slide set showing camp activities. Once camp opened, section staff joined other Division staff as instructors. Section staff also prepared and administered a final examination and took part in graduation ceremonies.

Waterfowl Stamps

The stamp program, now into its 11th year, drew 67 entries to the Peabody Museum of Salem. The winning painting was a white winged scoter carved by Captain Samuel Fabens and painted by Joseph Cibula of Marstons Mills.

Archery/Primitive Firearms Stamp

This year, for the first time, sportsmen hunting with historic firearms during the three day "primitive/firearms/deer season" were required to purchase the same stamp used by bowhunters earlier in the year. The design for the stamp was prepared on commission by Graphic Artist David Gabriel of Dorchester.

Wildlife Projects

Information and Education staff members continued their active participation in the Division's wildlife research and management programs in many ways. Both Jack Swedberg and Bill Byrne continued their active role in the Eagle Restoration Program with Jack especially involved as Restoration Project Leader. Peter Mirick continued to coordinate the Division portion of the statewide breeding salamander survey and to serve

as Division Herpetologist. Ellie Horwitz continued to participate in the statewide bat inventory.

Other

In addition to the aforementioned activities, section staff members participated in many other programs and projects. The annual deer season hotline was in operation throughout deer season and hunters taking noteworthy deer were offered attractive commemorative certificates. Early sale of licenses was encouraged by the preparation of Christmas gift envelopes and a Christmas gift campaign.

Staff members Horwitz, Mirick and Swedberg were active participants in the New England Outdoor Writers. Horwitz and Mirick served that group as Chairmen of the Annual Awards Committee.



REALTY

Floyd Richardson
Chief of Wildlife Lands

The enactment of Chapter 723 Acts of 1984 can only be described as land-mark legislation. Capital outlay monies totalling 162 million dollars to acquire, preserve and protect open space became the responsibility of seven state agencies.

Fiscal Year '84 also ushered in the Nongame Tax Checkoff bill. A portion of the funds collected under this program would be for the specific purpose of acquiring rare, threatened or endangered species habitat.

The planning, accountability and responsibility for the implementation of this environmentally important program rests with the Realty Section. The new dimension created by the multiple funding sources presents new challenges. The implementation and committal of funds which will follow will benefit all having a genuine interest in the great out-of-doors.

Millers River Acquisition Project2,067.3 acres

One hundred and thirty-five (135) acres of exceptional wildlife lands add significantly to this management area. The newly acquired parcel is fringed with a wetland marsh on its western perimeter. Stockwell Road, its northern boundary provides access and off-road parking, while the eastern and southern boundaries abut other Division lands. Mixed hardwoods and softwoods offer habitat for deer, turkey, varying hare, grouse and other game species. The acquired parcel, once a flourishing farm, bears apple trees, grape-vine tangles, wild raspberry bushes, and stone walls. These elements benefit all species of wildlife.

Gardner Acquisition Project1,783.7 acres

The management and control of the former Gardner State Hospital lands was transferred to the Division of Fisheries and Wildlife. Rolling hill-sides, open meadows, forestlands and marshland blend together to provide a promising wildlife management area.

Two adjoining parcels were acquired to enlarge the area by an additional 110 acres. These parcels contribute both forest lands and open lands adjacent to Smith Street.

Bitzer Trout Hatchery150.6 acres

This hatchery, long known as the Montague Trout Hatchery, produces excellent, large, "line-busting" trout. Water quality is one of the contributing factors responsible for the hatchery's success.

A proposed residential development site directly opposite the hatchery was made known to the Division. The development site was perched directly over an aquifer which is the water supply for the hatchery.

The imminent threat of water pollution caused by the proposed development and the potentially disastrous affect it would have on the hatchery, united sportsmen, town officials, and the Connecticut River Watershed Council and this agency. The concern of these groups immediately spawned action.

The Connecticut River Watershed Council opted to purchase the property then convey the property to the Division when funds became available. Sportsmen held raffles and received donations specifically for the acquisition and assisted in its purchase.

Subsequently, title to the property was recorded in the name of the Commonwealth February 14, 1984.

The Division of Fisheries and Wildlife is most grateful to the sportsmen, the Montague town officials, the Connecticut River Watershed Council and others too numerous to mention in this report who responded so enthusiastically and generously thereby averting contamination of an extremely important water resource.

Hinsdale Flats Acquisition Project1,147.7 acres

The Hinsdale Flats has matured into a wildlife area that has sensitive habitat for numerous wild species of plants and animals. It plays host to every indigenous species of game in Massachusetts. In addition, it provides a challenging and well-known trout stream.

This year two parcels were purchased to add another 85 acres to the area. The larger parcel provides shoreline on Muddy Pond. The second parcel is situated northerly of Bullards Cross-Road adding frontage on Cady Brook. Both parcels contribute wildlife food and cover to the management area.

Bolton Flats Acquisition Project734.4 acres

Fronting Route 110 in the township of Lancaster, this newly acquired 15 acre addition adjoins one of the more popular wildlife management areas. The new addition, with its dense cover and rich soils, provides ideal woodcock habitat.

Moose Hill Acquisition Project509.5 acres

A small but important parcel of wildlife land recently acquired enlarges and provides protection for this wildlife area. Twelve (12) acres of woodland gently slope downward in an easterly direction to combine with a wetlands area. Mature oak trees growing throughout the parcel provide mast, a valuable wildlife food.

Phillipston Acquisition Project2,929.5 acres

Consisting of woodland and abutting a beaver swamp, this parcel will significantly contribute to the wildlife community. The above-mentioned marsh is noted for the several successful wood duck nests prevalent throughout the flowage. The Cushing's gift is gratefully accepted. The Cushing Family of Gardner were most generous and sympathetic to wildlife by deeding 130 acres of wildlife land to the Division.

SUMMARY OF LAND ACQUISITION

Fiscal Year 1984

<u>Area Name</u>	<u>Town</u>	<u>Acreage</u>
Millers River	Royalston	135.0
High Ridge	Gardner	110.0
Bitzer Hatchery	Montague	10.0
Bolton Flats	Lancaster	15.0
Moose Hill	Paxton	12.0
Hinsdale Flats	Hinsdale	45.7
Phillipston	Phillipston	135.0

TOTAL: 496.7



Maintenance & Development

John P. Sheppard
Chief
Maintenance and Development

Hatcheries

Contracts were awarded and work began on construction of a wastewater treatment facility at the McLaughlin Hatchery, Belchertown, which will process waste-laden waters from the raceways prior to discharging them into the Swift River. A new flow monitoring system was installed at that same hatchery to ensure consistent conditions for the trout. Existing wells were redeveloped at the Sandwich and East Sandwich Hatcheries to improve water supply and a contract was let out to do the same for an existing well at the Sunderland Hatchery and to install a new water supply line. Development at the Palmer Hatchery, plagued with vandalism, involved relocating the existing fence to move visitors further away from tanks and raceways.

Districts

A major reconstruction of existing roadway and parking facilities was completed at the District Headquarters in Belchertown and improvements were made on the residence at the station. Additional paving of road and driveway was completed at the Western District Headquarters in Pittsfield.

Field Headquarters - Westboro

New floor coverings were installed on both first and second floors giving the facility a more "finished" appearance. Three free-standing glass

cases were built and installed in the McDonough Wildlife Museum leaving a need for only one case -- to house the fishing rod collection.

Hunter Safety Facility (Gardner)

This facility is just coming on line and extensive work is required to make the existing building serviceable. During this year, storm windows were installed as were an oil burner and a hot water unit. A contract for vinyl siding of the building was issued and awarded.

Public Access Facilities

Four areas received engineering attention during Fiscal Year 1984. A new canoe and cartop boat access was designed and built along the Hockomock River, Bridgewater. A new concrete slab, walls, concrete pads and wooden post barriers were constructed and installed at Fort Pond, Lancaster. This completes construction of the access facility at the pond. A new retaining wall was built and the existing roadway was reconstructed at White Pond in Concord. This now complete facility offers improved access and additional parking facilities.

Another parking facility with a wooden post perimeter was completed at Webster Lake, Webster in initiation of a revision of the public access facility. Design work was also completed for a new ramp, concrete slab and wall at Webster Lake and contracts for the work have been awarded.

PERSONNEL ACTIONS

Thirty-five personnel changes were undertaken during this fiscal year. They are:

Retirements

<u>Name</u>	<u>Job Title</u>	<u>Date</u>
G. Kuczma	Assistant Fish Culturist	08-26-83
W. Neale	Wildlife Mgmt. Area Supervisor	08-17-83
P. DeMarco	Conservation Skilled Helper	05-27-84
J. Maslanka	Conservation Skilled Helper	12-31-83
R. F. Deane	Conservation Helper	03-31-84
A. Kleinot	Principal Bookkeeper	06-30-84

Resignations

M. Pottle	Junior Clerk & Typist	09-30-83
R. Mietta	Conservation Skilled Helper	11-26-83
C. Croken	Senior Clerk & Stenographer	12-31-83

Appointments

<u>Name</u>	<u>Job Title</u>	<u>Date</u>
J. Hazzard	Conservation Helper	07-17-83
J. Kerr	Conservation Helper	08-28-83
W. MacCallum	Assistant Director - Wildlife	09-08-83
M. LaFleur	Junior Clerk & Typist	09-25-83
J. F. Williams	Assistant Fish Culturist	10-09-83
R. Lucas	Conservation Helper	11-27-83
R. E. Taylor	Assistant Fish Culturist	01-08-84
J. Shampang	Conservation Helper	04-29-84
T. W. French	Assistant Director for Nongame & Endangered Species	03-05-84

Promotions

D. Carlson	Wildlife Mgmt. Area Supervisor	10-02-83
R. Thomasian	Conservation Skilled Helper	10-02-83
N. Limosani	Principal Clerk	10-01-83
C. Croken	Senior Clerk & Stenographer	12-31-83
P. Sutliff	Senior Bookkeeper	10-02-83
M. Marenghi	Senior Clerk	10-02-83
A. M. Akin	Game Bird Culturist	12-04-83
J. S. Gromaski	Conservation Skilled Helper	02-26-84
S. Foster	Assistant Game Culturist	03-11-84
M. Wrubel	Conservation Skilled Helper	07-01-84
K. Weaver	Conservation Skilled Helper	10-02-83

Other

C. Ayers	Conservation Helper from Conservation Skilled Helper	10-02-83
B. Blodget	State Ornithologist	04-08-84

Positions Deleted

Junior Clerk & Stenographer, Grade 5, Boston Office

Senior Clerk & Typist, Grade 7, Boston Office

Staffing Pattern Change

Right of Way Negotiator to Wildlife Restoration Project Field Agent	08-14-83
Conservation Helper to Senior Bookkeeper	09-14-83

LEGISLATION

Enacted During Fiscal Year 1984

Chapter 330 - Acts of 1983. An Act Establishing the Nongame Wildlife Fund Along with the Nongame Advisory Committee and Authorizing Income Tax Refunds to be Credited to the Nongame Wildlife Fund.

Chapter 516 - Acts of 1983. An Act Defining "Firearm" and Regulating Ownership, Possession or Carrying of a Sawed Off Shotgun.

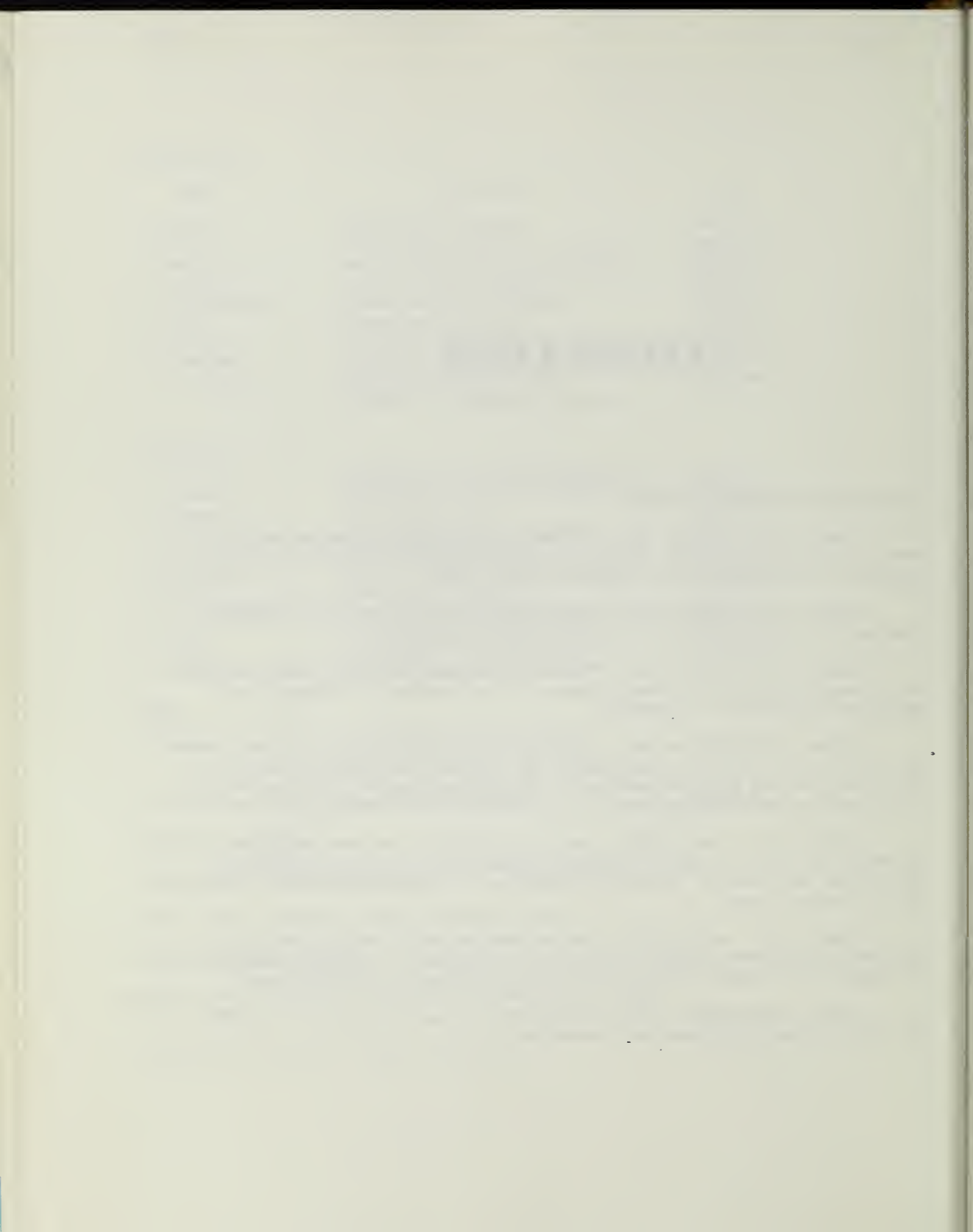
Chapter 538 - Acts of 1983. An Act Increasing the Surety Bond Required of Persons Authorized to Issue Licenses for the Division of Fisheries and Wildlife from \$2000.00 to \$6000.00.

Chapter 610 - Acts of 1983. An Act Authorizing and Directing Massachusetts to Join With the States of Connecticut, New Hampshire and Vermont along with the U. S. Fish and Wildlife Service and the National Marine Fisheries Service in a Common Compact for Management of the Salmon in the Connecticut River.

Chapter 617 - Acts of 1983. An Act Authorizing the Granting of an Easement Over Lands of the Division of Fisheries and Wildlife in Middleboro to William Couto for the Purpose of Installing an Electric Power Line to the Couto Cranberry Bogs.

Chapter 656 - Acts of 1983. An Act Designating a certain Section of the Lake Quinsigamond Bridge in the Town of Shrewsbury, in Honor of Kenneth F. Burns, a late member of the Division of Fisheries and Wildlife Board.

Chapter 658 - Acts of 1983. An Act Regulating the Interbasin Transfer of Water by the Water Resources Commission.



FINANCIAL REPORT

"HOW THE SPORTSMEN'S DOLLAR WAS SPENT"

	<u>Account No.</u>	<u>Expenditures</u>	<u>Percent- age</u>
<u>Administration</u>			
Administration	2310-0200	\$ 468,455.51	
Information-Education	2310-0200	232,199.12	\$ 700,654.63 11.34%
<u>Wildlife Programs</u>			
Game Farms	2310-0400	675,589.62	
Wildlife Management**	2310-0400	756,195.77	
Wildlife Cooperative Unit	2310-0400	72,000.00	1,503,785.39 24.33%
<u>Fisheries Programs</u>			
Fish Hatcheries	2310-0400	830,818.99	
Fisheries Management**	2310-0400	644,554.93	
Fisheries Cooperative Unit	2310-0400	72,000.00	1,547,373.92 25.04%
<u>Nongame and Endangered Species Program</u>			
Admin., Mgmt. and Research**	2315-0100	20,743.08	.34%
<u>Construction</u>			
Development and Improvement of Facilities for Public Use*	2310-0300	44,326.15	.72%
<u>Land Acquisition</u>			
Acquisition of Upland Areas & Inholding on Existing Areas*	2310-0310	140,359.30	2.27%
<u>Equipment</u>			
Purchase of Equipment	2310-0315	262,556.01	4.25%
<u>Dept. of Fisheries, Wildlife, and Recreational Vehicles</u>			
Natural Resource Officers'			
Salaries and Expenses (15%)	2350-0100	301,511.31	4.88%
Hunter Safety Training***	2350-0101	145,358.96	2.35%
<u>Transfers from Fund</u>			
Group Insurance	1590-1007	533,066.00	8.62%
Salary Adjustments	2310-7001	221,822.36	3.59%
<u>Pension Reserve Fund</u>		181,924.00	2.94%
<u>Retirement Assessment (.2%)</u>	0612-1000	338,026.42	5.47%
<u>Interest on Bonded Debt</u>	0699-2800	44,592.50	.72%
<u>Maturing Serial Bonds & Notes</u>	0699-2900	194,000.00	3.14%
Total Expenditures		\$6,180,100.03	100.00%

* Continuing Appropriation

** Portions of expenditures 60% or 75% reimbursable by Federal Government

*** 100% reimbursable by Federal Government

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APPROPRIATIONS AND EXPENDITURES
Fiscal Year July 1, 1983 to June 30, 1984

Inland Fish and Game Fund Accounts

<u>Account No.</u>		<u>Appropriations</u>	<u>Expenditures & Liabilities</u>	<u>Total Reversions</u>
2310-0200	Administration	711,309.58	700,654.63	10,654.95
2310-0315	Purchase of Equipment	274,000.00	262,556.01	11,443.99
2310-0400	Wildlife Management	3,065,246.36	3,051,159.31	14,087.05
2315-0100*	Nongame Mgmt. & Research	22,740.50	20,743.08	1,997.42
		<u>4,073,296.44</u>	<u>4,035,113.03</u>	<u>38,183.41</u>

		<u>Continuing Appropriations</u>	<u>Expenditures</u>	<u>Balance Forward</u>
2310-0300	Development & Improvement of Facilities-Public Use	107,374.25	44,326.15	63,048.10
2310-0310	Acquisition Upland Areas; Inhoding on Existing Areas	<u>298,608.75</u>	<u>140,359.30</u>	<u>158,249.45</u>
		<u>405,983.00</u>	<u>184,685.45</u>	<u>221,297.55</u>

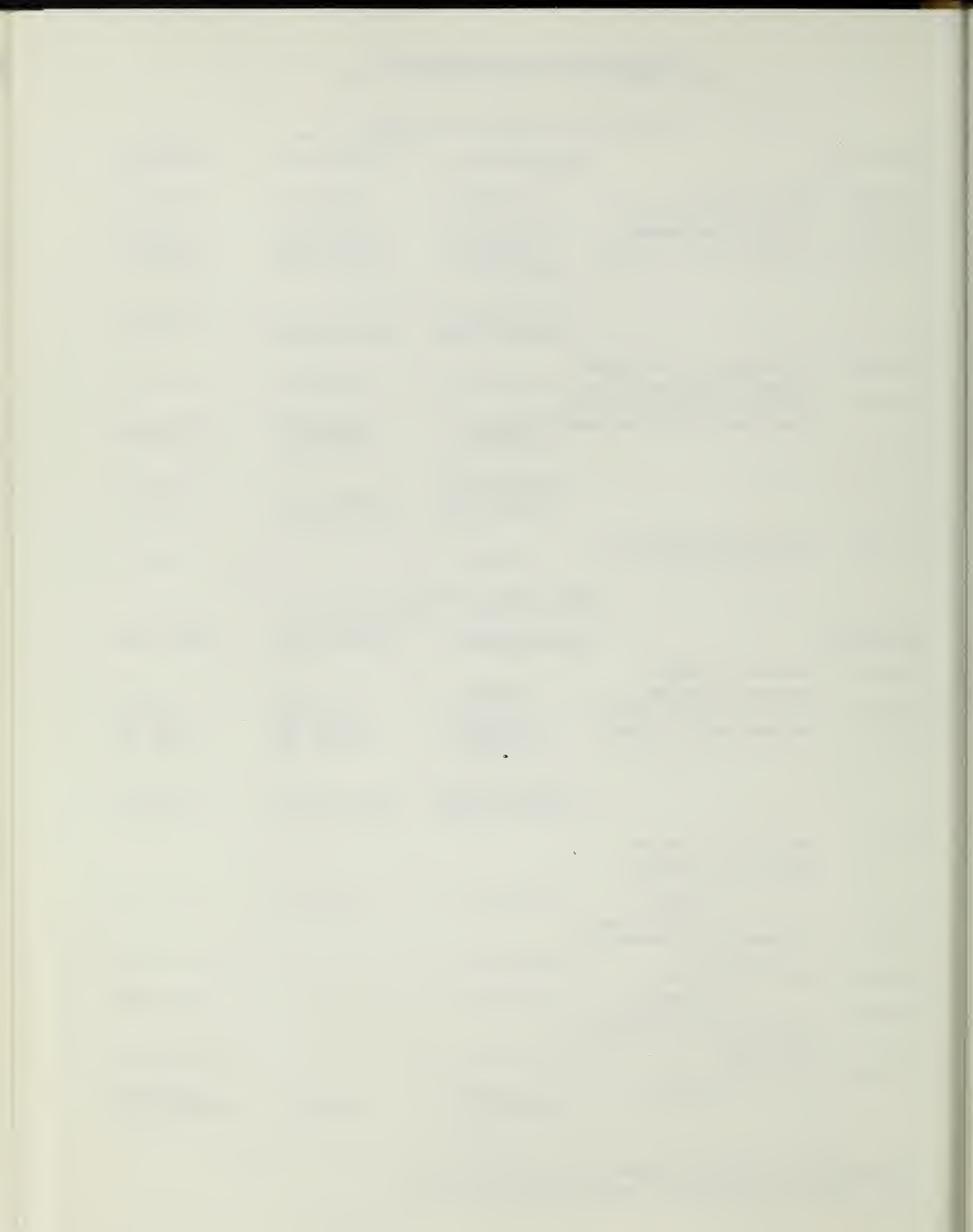
		<u>Capital Outlay Appropriation</u>	<u>Expenditures</u>	<u>Balance Forward</u>
2670-9016	Acquisition of Coastal & Inland Wetlands	5,545.49		5,545.49

General Fund Accounts

<u>Account No.</u>		<u>Appropriations</u>	<u>Expenditures & Liabilities</u>	<u>Total Reversions</u>
2310-0500	Natural Heritage & Greenway Planning	155,000.00	144,197.34	10,802.66
2310-0550	Acid Rain Investigation	50,000.00	47,350.00	2,650.00
2315-0100*	Nongame Mgmt. & Research	22,740.50	20,743.08	1,997.42
		<u>227,740.50</u>	<u>212,290.42</u>	<u>15,450.08</u>

		<u>Capital Outlay Appropriations</u>	<u>Expenditures</u>	<u>Balance Forward</u>
2310-8821	Wastewater Treatment Facility, McLaughlin Hatchery (Alloc. of 2310-8827)	750,000.00	21,807.23	728,192.77
2310-8840	Acquisition of Cold Water Streams for Conservation & Recreation	3,760,000.00	-	3,760,000.00
2310-8841	Associated Costs (2310-8840)	240,000.00	-	240,000.00
2310-8842	Acquisition of Land to Existing Wildlife Manage- ment Areas	7,050,000.00	-	7,050,000.00
2310-8843	Associated Costs (2310-8842)	<u>450,000.00</u>	<u>-</u>	<u>450,000.00</u>
		<u>12,250,000.00</u>	<u>21,807.23</u>	<u>12,228,192.77</u>

*Nongame Mgmt. & Research expenses were funded by
the Inland Fish and Game and General Funds (50% each).



SUMMARY OF REVENUE CREDITED
TO THE
INLAND FISH AND GAME FUND
July 1, 1983 to June 30, 1984

Collected by Agency:

Fishing, Hunting and Trapping Licenses*	3304-61-01-40	\$3,458,720.50
Archery Stamps*	3304-61-01-40	103,313.80
Trap Registrations*	3304-61-01-40	1,205.00
Waterfowl Stamps*	3304-40-01-40	6,562.40
Waterfowl Stamps - Ducks Unlimited*	3304-40-02-40	19,784.00
Special Licenses, Tags & Posters**		14,446.55
Antlerless Deer Permits	3304-61-14-40	39,662.50
Bear Permits	3304-61-14-40	3,440.00
Turkey Permits	3304-61-14-40	12,613.00
Rents	3304-63-01-40	16,524.90
Sales, Other	3304-64-99-40	21,410.80
Refunds Prior Year	3304-69-01-40	3,573.05
Miscellaneous Income	3304-69-99-40	1,113.45
		<u>\$3,702,369.95</u>

Collected by State Treasurer:

Fines and Penalties	3308-41-01-40	30,385.22
Interest and Discount on Revenue	3395-60-01-40	58,916.47
		<u>\$89,301.69</u>

Federal Aid Reimbursements:

Pittman-Robertson Federal Aid	3304-67-01-40	686,792.32
Dingell-Johnson Federal Aid	3304-67-02-40	344,195.97
Anadromous Fish Projects-Federal Aid	3304-67-04-40	16,346.28
Endangered Species Federal Aid	3304-67-11-40	3,633.55
Indirect Cost Reimbursement	3304-67-67-40	359,369.67
		<u>\$1,410,337.79</u>

Taxes:

Gasoline Tax Apportionment	3312-05-01-40	374,304.00
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Transfers from General Fund:

Salary Adjustments	3360-95-02-36	231,978.36
Reimbursement on Half Price Licenses	3360-95-08-40	75,132.25
		<u>\$307,110.61</u>

Reversions:

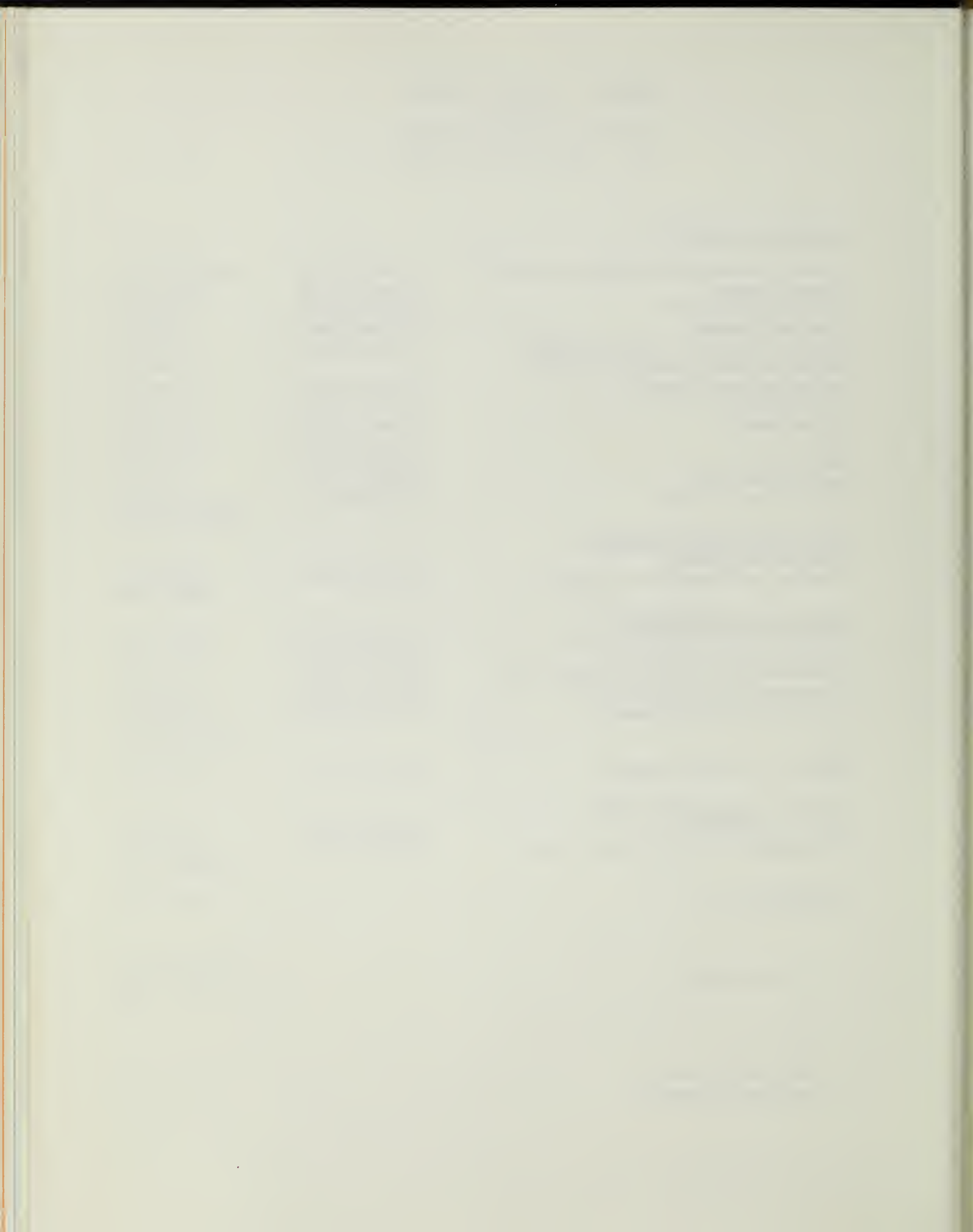
Accounts Payable		50,407.40
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TOTAL REVENUE

\$5,933,831.44

* See Detail Sheet #1

** See Detail Sheet #2

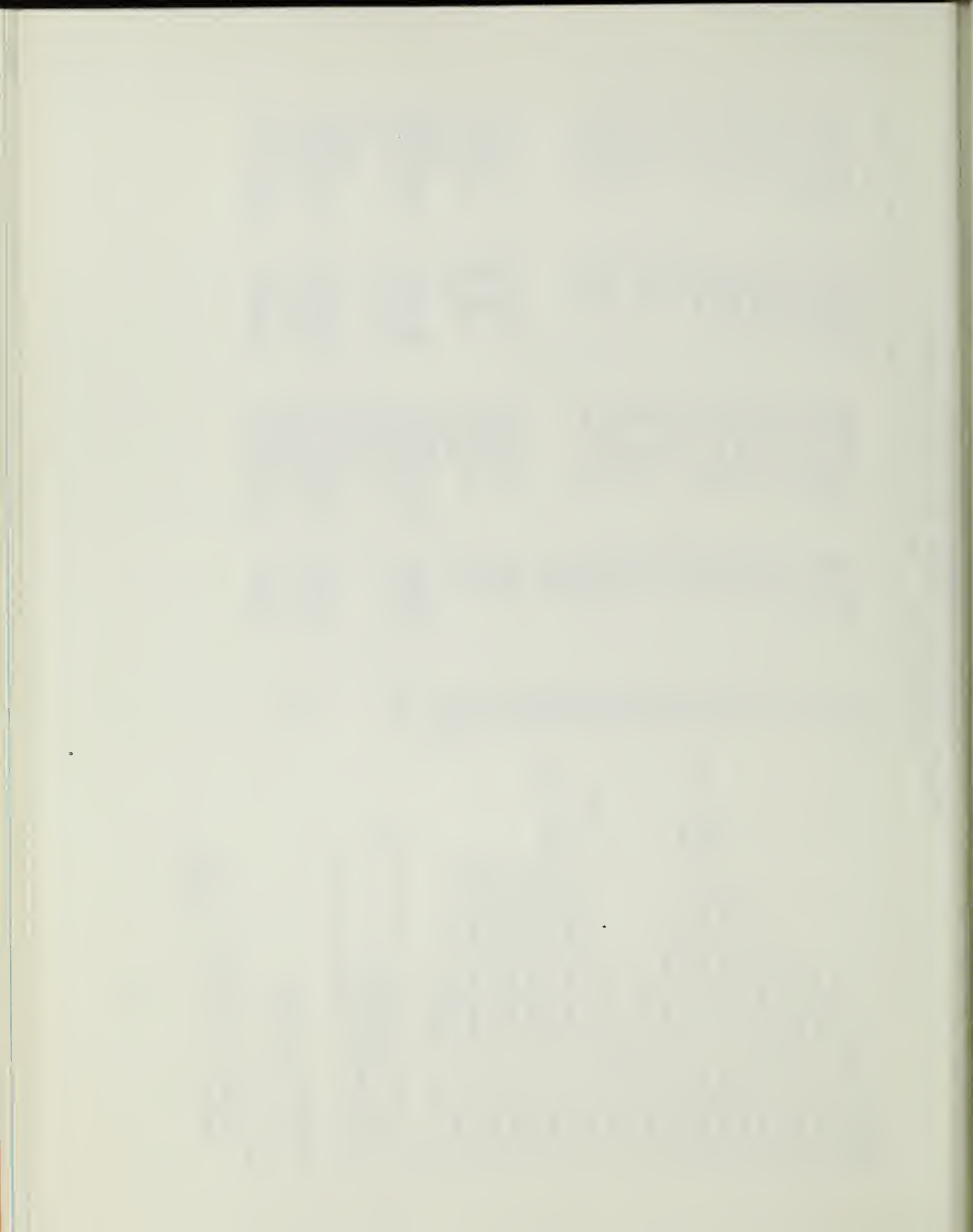


DIVISION OF FISHERIES AND WILDLIFE
RECEIPTS FROM FISHING, HUNTING AND TRAPPING LICENSES
Fiscal Year July 1, 1983 to June 30, 1984

Class & Type of License	Unit Price	Quantity	Gross Amount	Fees Retained		Net Returned to Commonwealth
				by City/Town Clerks		
01 Res. Cit. Fishing	12.50	119,899	1,498,737.50	40,554.00		1,458,183.50
02 Res. Cit. Hunting	12.50	46,219	577,737.50	18,232.50		559,505.00
03 Res. Cit. Sporting	19.50	55,581	1,083,829.50	20,132.00		1,063,697.50
04 Res. Cit. Minor Fishing	6.50	7,263	47,209.50	2,703.25		44,506.25
05 Res. Alien Fishing	14.50	1,026	14,877.00	396.00		14,481.00
06 Non-Res. Cit./Alien Fishing	17.50	5,118	89,565.00	1,804.00		87,761.00
07 Non-Res. Cit./Alien Fishing (7 da.)	11.50	2,303	26,484.50	706.50		25,778.00
08 Non-Res. Cit./Alien Hunting (Small Game)	23.50	985	23,147.50	406.50		22,741.00
09 Non-Res. Cit./Alien C.S.P. (3 da.)	19.50	31	604.50	13.50		591.00
10 Res. Cit. Minor Trapping	8.50	177	1,504.50	73.00		1,431.50
11 Res. Cit. Trapping	20.50	808	16,564.00	347.50		16,216.50
12 Duplicates	2.00	3,260	6,520.00	-		6,520.00
13 Res. Alien Hunting	19.50	1,130	22,035.00	476.50		21,558.50
14 Non-Res. Cit./Alien Hunting (Big Game)	48.50	1,286	62,371.00	542.00		61,829.00
15 Res. Cit. Sporting (Over 70)	FREE	18,785				
16 Res. Cit. Fishing (Blind-Para-Ment. Ret.)	FREE	1,298				
17 Res. Cit. Hunting (Paraplegic)	FREE	124				
18 Res. Cit. Fishing (Age 65-69)	6.25	5,930	37,062.50	2,637.00		34,425.50
19 Res. Cit. Hunting (Age 65-69)	6.25	703	4,393.75	328.50		4,065.25
20 Res. Cit. Sporting (Age 65-69)	9.75	2,805	27,348.75	1,251.50		26,097.25
21 Res. Cit. Trapping (Age 65-69)	10.25	67	686.75	32.00		654.75
24 Non-Res. Trapping	300.00	2	600.00	-		600.00
22 Archery/Primitive Firearms Stamps	5.10	274,800	3,541,278.75	90,636.25		3,450,642.50
Sold to Collectors		20,567	104,891.70	1,585.90		103,305.80
*Trap Registrations			8.00	-		8.00
Collections on Delinquent Accounts			1,205.00	-		1,205.00
			8,078.00	-		8,078.00
23 Waterfowl Stamps	1.25	295,367	3,655,461.45	92,222.15		3,563,239.30
Sold to Collectors		23,354	29,192.50	4,523.75		24,668.75
			1,677.65	-		1,677.65
		318,721	3,686,331.60	96,745.90		3,589,585.70

*Trap Registrations:

Initials	79 @ \$2.00	158.00
Renewals	698 @ \$1.50	1,047.00
		<u>1,205.00</u>



SPECIAL LICENSES, TAGS AND POSTERSJuly 1, 1983 to June 30, 1984

<u>Receipt Account</u>	<u>Type of License</u>	<u>Quantity & Unit Price</u>	<u>Amount</u>	<u>Receipt Account Total</u>
3304-61-02-40	Fur Buyers			
	Resident Citizens:	22 @ 25.00	550.00	
	Non-Residents or Aliens:	4 @ 75.00	300.00	850.00
3304-61-03-40	Taxidermists	89 @ 20.00		1,780.00
3304-61-04-40	Propagators			
	Special Purpose Permits:	32 @ 1.00	32.00	
	Class 1 (Fish)			
	Initials:	47 @ 15.00	705.00	
	Renewals:	165 @ 10.00	1,650.00	
	Class 3 (Fish)			
	Initials:	11 @ 15.00	165.00	
	Renewals:	74 @ 10.00	740.00	
	Class 4 (Birds, Reptiles, Mammals)			
	Initials:	47 @ 15.00	705.00	
	Renewals:	321 @ 10.00	3,210.00	
	Class 6 (Dealers)			
	Initials:	8 @ 15.00	120.00	
	Renewals:	56 @ 10.00	560.00	
	Additional Stores:	108 @ 5.00	540.00	
	Class 7 (Individual Bird or Mammal)			
	Initials:	2 @ 5.00	10.00	
	Renewals:	29 @ 2.00	58.00	
	Importation Permits			
	Fish:	2 @ 7.50	15.00	
	Birds:	30 @ 7.50	225.00	
	Class 9 (Falconry)			
	Masters:	6 @ 25.00	150.00	
	Apprentices:	12 @ 25.00	300.00	
	General:	10 @ 25.00	250.00	
	Class 10 (Falconry)			
	Raptor Breeding:	4 @ 10.00	40.00	
	Class 11 (Falconry)			
	Raptor Salvage:	24 @ 1.00	24.00	9,499.00
3304-61-05-40	Take Shiners	89 @ 10.00		890.00
3304-61-06-40	Field Trial Licenses	8 @ 15.00		120.00
3304-61-07-40	Taking of Eels	2 @ 25.00		50.00
3304-61-08-40	Quail for Training Dogs			
	Initials:	7 @ 7.50	52.50	
	Renewals:	25 @ 5.00	125.00	177.50
3304-61-10-40	Comm. Shooting Preserves	9 @ 50.00		450.25*
3304-61-12-40	Mounting Permits	2 @ 2.00		4.00
3304-61-13-40	Special Field Trial Permits	5 @ 15.00		75.00
3304-64-01-40	Tags and Posters			
	Game Tags:	4,688 @ .10	468.80	
	Fish Tags:	1,000 @ .05	50.00	
	Posters:	320 @ .10	32.00	550.80
				14,446.55

*25¢ deposited in incorrect
receipt account number.



CHANGES IN
INLAND FISH AND GAME FUND BALANCE

Fiscal Year July 1, 1983 to June 30, 1984

Balance July 1, 1983 (Surplus)	\$ 222,046.36
Total Revenue/Credits	5,933,831.44
Total Expenditures	-6,180,100.03
Decrease in Continuing Accounts Brought Forward*	305,862.08
Balance June 30, 1984 (Surplus)	\$ 281,639.85

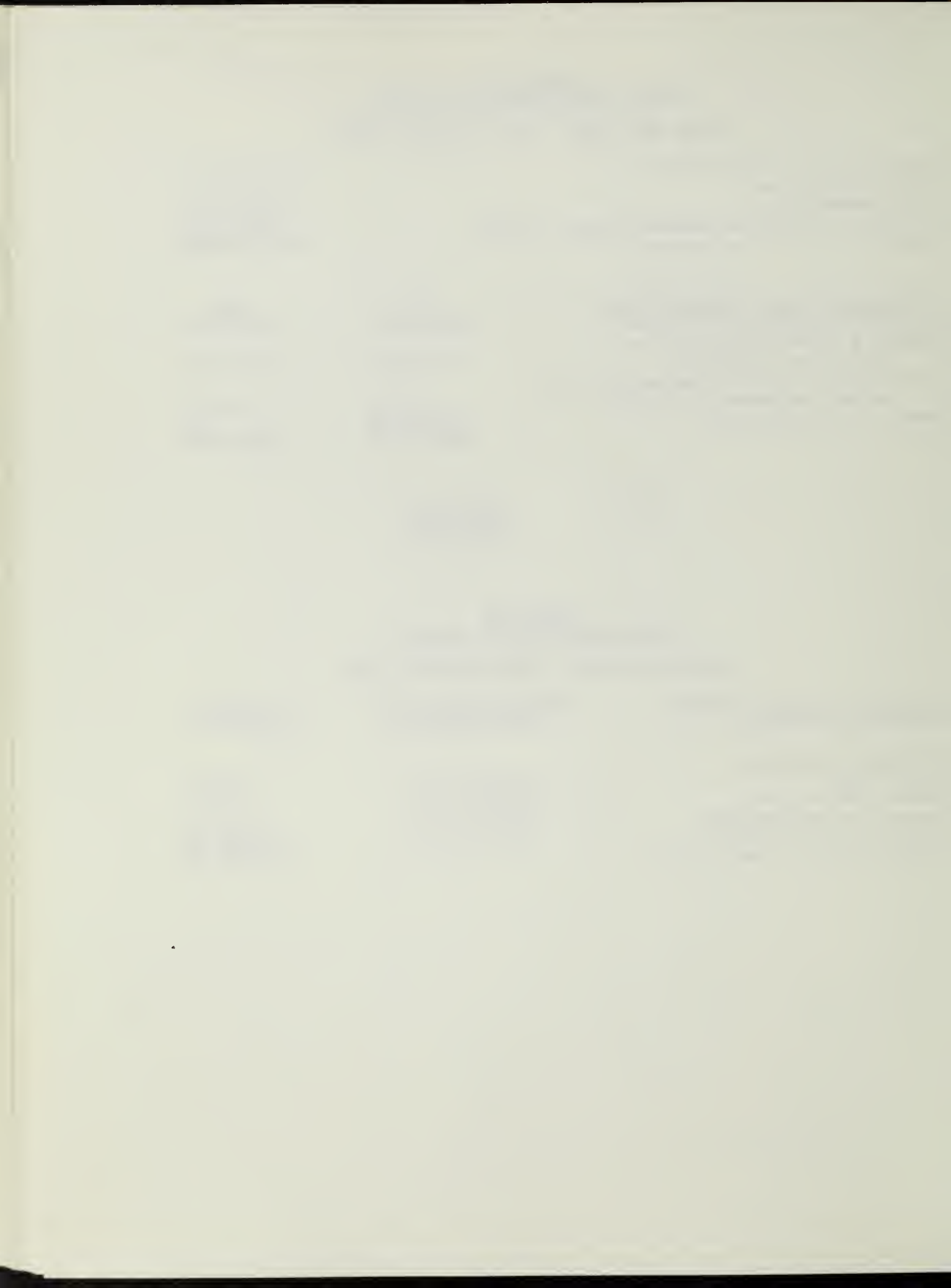
	<u>1983</u>	<u>1984</u>
Continuing Accounts Brought Forward		
Retirement Assessment (0612-1000)	\$257,808.71	\$24,028.29
Develop & Improve Facilities for Public Use (2310-0300)	24,965.02	57,236.07
Acquisition of Upland Areas and Inholding on Existing Areas (2310-0310)	568.75	1,665.27
Reserve for Encumbrances	105,449.98	.75
	\$388,792.46	\$82,930.38

1984	\$ 82,930.38
1983	-388,792.46
	*\$305,862.08

CHANGES IN
NONGAME WILDLIFE FUND BALANCE

Fiscal Year July 1, 1983 to June 30, 1984

<u>Collected by State Treasurer</u>	<u>Receipt Account No.</u>	<u>Amount</u>
Nongame Tax Checkoff	3015-59-01-40	\$326,371.03
 <u>Collected by Division</u>		
Sales, Other	3015-64-01-40	356.31
Miscellaneous, Other	3015-69-01-40	2,905.19
Federal Aid Reimbursement	3015-67-01-40	5,153.43
Indirect Cost Allowance	3015-62-01-40	3,284.50
Balance June 30, 1984 (Surplus)		\$338,070.46



FISH & WILDLIFE BOARD

